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The *Journal of Medical Education* serves as an important international medium for the exchange of ideas in medical education, as well as a means of communicating the policies, programs, and problems of the Association. The Editorial Board welcomes the submission of manuscripts concerned with the broad field of medical education or any aspect of it; this includes preparation for medical education; the medical school experience; intern and resident education; graduate and postgraduate medical education. It is especially interested in educational experiments and pertinent reports from other educational fields. The Editorial Board recognizes that medical education includes the activities of faculty, students, administrators, and those of the practicing profession who also teach and learn. Thus, it invites communications from any of these sources.

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Correspondence: Address all correspondence regarding manuscripts, news, editorials, announcements, and all letters to the Editor to the Editorial Office, University Hospitals, University of Wisconsin, Madison 6, Wisconsin.

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By J. ROBERT WILLSON, M.D., Professor and Head of the Department of Obstetrics and Gynecology; CLAYTON T. BEECHAM, M.D., Clinical Professor of Obstetrics and Gynecology; ISADOR FORMAN, M.D., Clinical Professor of Obstetrics and Gynecology; and ELSIE REID CARRINGTON, M.D., Assistant Professor of Obstetrics and Gynecology, all at Temple University School of Medicine and Temple University Medical Center. Just Published. Approx. 610 pages, 6¾" x 9¾", 267 illustrations. Price, $10.75.

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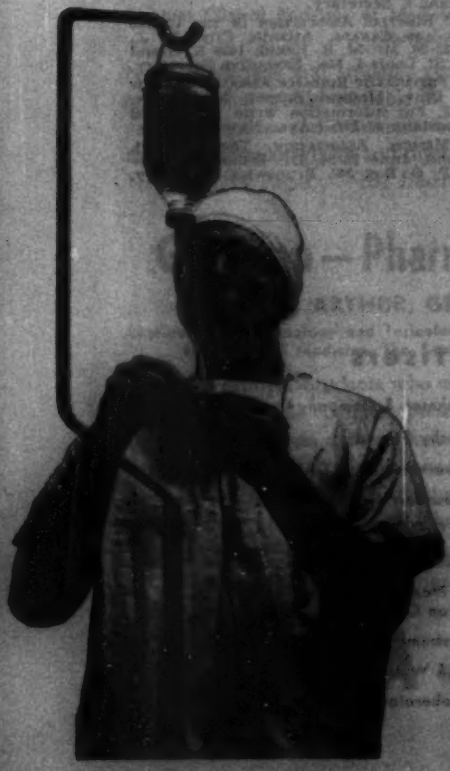

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69th Annual Meeting, October 13-15, The Sheraton Hotel, Philadelphia, Pa.

JUNE

AMERICAN ACADEMY OF TUBERCULOSIS PHYSICIANS, San Francisco, June 21. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Secretary.

AMERICAN ASSOCIATION OF NEUROPATHOLOGISTS, Claridge Hotel, Atlantic City, N. J., June 15-18. Dr. Leon Roizin, 722 W. 168th St., New York 32, Secretary.

AMERICAN COLLEGE OF ANESIOLOGY, Fairmont Hotel, San Francisco, June 21-22. Dr. Alfred Halpern, 15 E. 62d St., New York 21, Executive Secretary.

AMERICAN COLLEGE OF CHEST PHYSICIANS, Fairmont Hotel, San Francisco, June 18-22. Mr. Murray Kornfeld, 112 E. Chestnut St., Chicago 11, Executive Director.

AMERICAN DERMATOLOGICAL ASSOCIATION, Challenger Inn, Sun Valley, Ida., June 4-8. Dr. J. Lamar Callaway, Duke Hosp., Durham, N. C., Secretary.

AMERICAN DIABETES ASSOCIATION, Mark Hopkins Hotel, San Francisco, June 21-22. Dr. Franklin B. Peck Sr., 1 E. 48th St., New York 17, Secretary.

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY, Hotel Traymore, Atlantic City, N. J., June 12-14. Dr. Jerome K. Merlis, Univ. Hosp., Baltimore 1, Secretary.

AMERICAN GERIATRICS SOCIETY, Mark Hopkins Hotel, San Francisco, June 19-20. Dr. Richard J. Kraemer, 2007 Post Road, Warwick, R. I., Secretary.

AMERICAN GOITER ASSOCIATION, St. Francis Hotel, San Francisco, June 17-19. Dr. John C. McClintock, 149½ Washington Ave., Albany, N. Y., Secretary.

AMERICAN LIFE CONVENTION, MEDICAL SECTION, Broadmoor Hotel, Colorado Springs, Colo., June 9-11. Dr. John E. Boland, 5801 Sheridan Rd., Chicago 40, Chairman.

AMERICAN MEDICAL ASSOCIATION, Sheraton-Palace Hotel, San Francisco, June 23-27. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, Inc., San Francisco, June 19-22. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

AMERICAN NEUROLOGICAL ASSOCIATION, Claridge Hotel, Atlantic City, N. J., June 16-18. Dr. Charles Rupp, 133 S. 36th St., Philadelphia 4, Secretary.

AMERICAN PROCTOLOGIC SOCIETY, Los Angeles Statler, Los Angeles, June 29-July 3. Mr. Norman D. Nigro, 10 Peterboro St., Detroit 1, Secretary.

AMERICAN RHEUMATISM ASSOCIATION, San Francisco, June 20-21. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

AMERICAN SOCIETY OF X-RAY TECHNICIANS, Adolphus Hotel, Dallas, Tex., June 7-12. Miss Genevieve J. Ellert, 16, 14th St., Fond du Lac, Wis., Executive Secretary.

AMERICAN THERAPEUTIC SOCIETY, Mark Hopkins Hotel San Francisco, June 19-22. Dr. Oscar B. Hunter Jr., 915 19th St., N. W., Washington 6, D. C., Secretary.

ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY, Fairmont Hotel, San Francisco, June 23-27. Dr. Lorand V. Johnson, 10515 Carnegie Ave., Cleveland 6, Secretary.

CATHOLIC HOSPITAL ASSOCIATION OF THE UNITED STATES AND CANADA, Atlantic City, N. J., June 23-26. Mr. M. R. Kneifl, 1438 S. Grand Blvd., St. Louis 4, Mo., Executive Secretary.

EASTERN PSYCHIATRIC RESEARCH ASSOCIATION, New York Univ. Medical School, New York, June 5. For information write: Dr. David J. Impastato, 40 Fifth Ave., New York.

MAINE MEDICAL ASSOCIATION, The Samoset, Rockland, June 22-24. Dr. Esther M. Kennard, P. O. Box 240, Brunswick, Secretary.

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Quimby, Feitelberg & Silver — Radioactive Isotopes in Clinical Practice

By EDITH H. QUIMBY, Sc.D.
Professor of Radiology (Physics), College of Physicians and Surgeons, Columbia University

SERGEI FEITELBERG, M.D.
Director, Physics Department, The Mt. Sinai Hospital; Associate Clinical Professor of Radiology, College of Physicians and Surgeons, Columbia University

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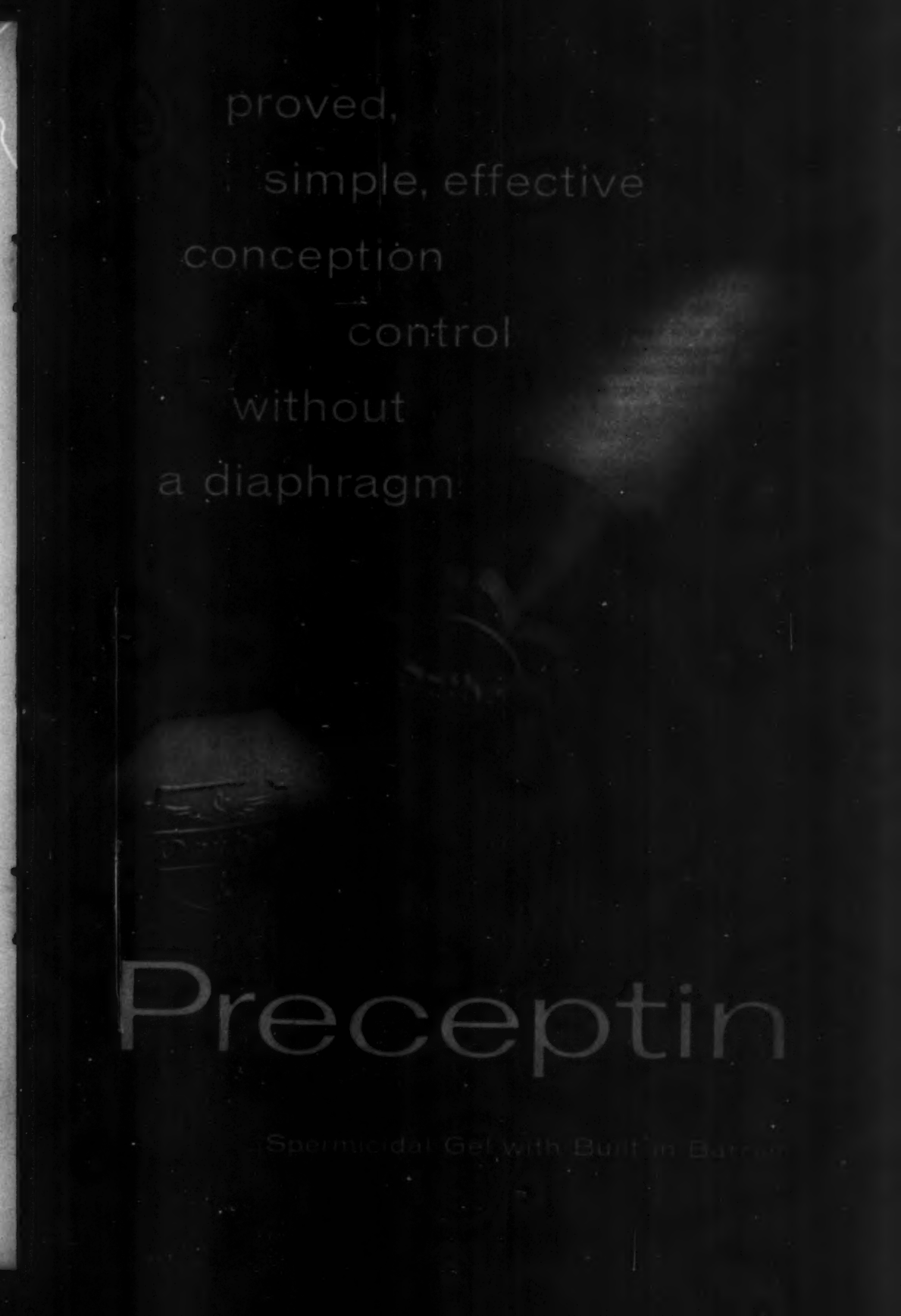
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This photoscan shows the distribution of radiogold in the left pleural space of a patient with mesothelioma. A tracer amount has been injected to make sure that distribution is free so that the therapeutic dose of the radioisotope would not be dangerously loculated in a small area.

An insoluble colloidal dispersion, the radiogold is not absorbed into the circulation but is adsorbed on serous surfaces or phagocytosed. The mechanism by which it slows the rate of fluid accumulation is unknown.

The investigators who have published over 10,000 articles on radioactive isotopes in the past 10 years have enriched biomedical research. Their continuing advances in medical physics and radiobiology promise the contributions to our understanding of physiologic, pathologic and pharmacodynamic processes that lead to new developments in diagnosis and treatment. Lakeside Laboratories, Inc., Milwaukee 1, Wisconsin.

Photoscan courtesy of Vincent R Collins, M.D., Department of Radiology, Baylor University College of Medicine, Houston, Texas

THERAPEUTIC DIRECTION THROUGH BASIC RESEARCH

LAKESIDE

Psychology in the Medical Curriculum at the University of Natal

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In 1955, the Department of Psychology in the University of Natal was asked to deliver a course of lectures to medical students. Three groups of students have finished the courses, and the experience we have gained should be of interest, since the course is unusual, both in its form, its status, and in its place in the curriculum.

The course lasts 120 hours, is compulsory, and extends over the last half of the 2d and the first half of the 3d year. (In the second year, students read anatomy and physiology.) Before entering the 4th year, a student has to pass an examination in psychology. Thus, psychology has the same status as the other preclinical studies—a fact which students at first felt as an imposition they would not have had to suffer at other schools.

The short time available has compelled us to consider whether to give detailed information in a few fields, or whether to give a general survey of the subject. In the end it was decided to adopt neither alternative, but to concentrate on encouraging a psychological approach to the sick person—a phrase having a very specific meaning for us. Medical students may tend to see their patients as isolated physiological systems, immune from all casual influences; but those of a physical and chemical nature; and conventional medical training, directly or by implication, often reinforces this view. To counteract it, students should, we feel, be encouraged in the first place to regard psychological processes as higher functions of the brain, best studied through language and behavior, in order to overcome the unfortunate dichotomy between psychology and physiology with which they enter their training. Also, they should be able to see the normal individual as a member of a community—such as those toward diet, sanitation, and witchcraft—which may both prevent him accepting rational medicine and be direct causes of disease.

To achieve this general aim, the detailed syllabus concentrates on three categories of fact: those that demonstrate that disturbances in the nervous system produced by psychogenic factors may lead to physiological upset of the whole organism, those that show the individual to be constantly exposed to psychogenic factors of this kind, and those that demonstrate the physical environment often to be a function of the person's own attitudes or those of his social group.

We are, however, very careful not to overemphasize psychogenic causation; in our own opinion great harm is suffered by a student who regards

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a psychological approach to a person as in some way competing with the traditional biological approach. We try, though it is not easy, to get our students to move easily between the physiological and psychological realms of discourse without overvaluing either.

After these general aims, our next task is to give students a basic knowledge of normal psychological development to aid him in his later specialized medical studies, and, also to teach interviewing. Interviewing is a basic psychological skill in all branches of medicine and is now so well understood that we believe it can, and should, be taught more systematically than in the past, both as a method of eliciting data and of attitude and personality change. (Apart from interviewing, we do not teach techniques directly. It is impossible in a short course to give adequate technological training, and we are not convinced that detailed knowledge of testing methods, diagnostic procedures, and research techniques is required by the practitioner, who can call on Clinical Psychologists for these services.)

Social psychology is regarded as one of the most useful parts of the syllabus, but we do not accept the view that it is the only kind suitable for medical students. There is much general psychology of great importance. For example, if the concepts of psychosomatic medicine are to mean anything, students should know in what ways personality may be correlated with various visceral functions, they should be clear that an act of behavior involves all functions of the organism, and they should be able to see a life history as involving both psychological and bodily events. Also, without knowledge of perception, no student can make sense of the perceptual disturbances in parietal lobe injury. Likewise, the assessment of personality changes resulting from drugs acting on the central nervous system or from cerebral injury will be very crude unless the student has some psychological knowledge. There are many other special fields in which psychological knowledge is valuable, but these examples should be sufficient to show that one cannot limit psychology for medical students to a special branch of the subject. To do so may be to court failure.

No abnormal psychology is taught, except insofar as it is a source of information on general psychological theory. The emphasis is on the normal person; this is important, for the student must realize that there is such a thing as normal psychology before he can enter on his studies of psychopathology. It is also a great temptation to teach psychopathology and not normal psychology, for the former seems more directly applicable to medical practice. However, by showing how the findings of normal psychology may aid the interpretation of a pathologic phenomena this temptation is overcome, and the subject made relevant.

Each section of the syllabus (Table 1) is taught with these general aims of the course in mind. The order of teaching is important; under our own conditions, where we have students who are reading physiology but who have had no contact with patients at all, it is natural to begin with those parts of the subject closest to physiology. However, in another situation where psychology is taught later in the curriculum, it might be better to begin, for example, with developmental psychology. What is fundamental in a new course is that it should be introduced through the most immediate present interests of the student.

TABLE 1

UNIVERSITY OF NATAL — DEPARTMENT OF PSYCHOLOGY

SYLLABUS

Psychology—Course for Medical Students 1956—1957.

1. Introduction	
a) Content and limits of the subject Relationship to other subjects b) The Nature of Behavior	2 hours
2. Fundamental concepts (outline of)	
a) Perception b) Learning c) Motivation and its emotional accompaniments	15 hours
3. Experimental psychopathology	12 hours
a) Experimental production of abnormal behavior in animals b) Effects of emotion on visceral function in man and in animals	
4. Psychological functions of the cerebrum	9 hours
5. Developmental psychology	47 hours
a) Maturation and learning b) Outline of observable behavior (Gesell studies) c) Description and theory of cognitive development d) Early social and emotional development—including psychoanalytic theory and the study of the family e) Social factors in later development f) Comparative studies of development	
6. Social psychology	12 hours
7. Primitive views of the nature of disease and its cure	1 hour
8. Alteration of fixed patterns of behavior in individuals	2 hours
9. Lectures on practical syllabus	10 hours
10. Practical: Intelligence teaching—special cognitive tests Projective techniques—the interview (in detail)	10 hours
Total	120 hours

May, 1957

Practical teaching, owing to lack of facilities, is very limited. Interviewing is taught by recordings, and our students see demonstrations of various test procedures. The Meyrick Bennett Children's center provides us with demonstration material of psychodiagnostic interviews of children.

All members of the Psychology Department in the University teach in the course. This is an admirable arrangement, since the student experiences a diversity of approaches in a short time and is not dominated by the opinions of one lecturer. Our experience has convinced us that this is the best arrangement, short of a large department in the medical school itself. A single lecturer in the school, teaching the whole course, would be unable to provide the kind of course we consider ideal: for our general aims, if they are not to remain fuzzy generalities, must be expounded by specialists in social, personality, and physiological psychology.

The effect of the course—We cannot easily determine in detail the effect the course has had on the students, since we have had only three groups. However, our last oral examination gave us some broad information on how we have affected our students' attitudes.

Faced with the question of how to deal with a community hostile to rational medicine, all—even the worst—gave a sophisticated answer. They saw the problem as psychological and, even if they could not remember the special techniques of attitude change, which they had been taught, they realized that anger or annoyance at the apparent stupidity of the community would get them nowhere. They were able to discuss, and to give proper weight to, the psychological factors in sickness and to the role of attitudes in establishing healthy communities. In general discussion, they moved easily between psychological and physiological language, showing little tendency to split the organism into a psychological and a physiological half. Finally, they were well acquainted with interviewing methods, and it is unlikely that these students will, as is so often the case, substitute an interrogation for an interview.

Their detailed knowledge of psychology was poor; this was an expected result of so short a course. However, we have no doubt that these students will find, it easy to grasp the concepts of psychiatry and social medicine, and that they will understand and inquire into the role of psychological factors in a particular case more easily than if they had not taken the course. It is probable that many of the students (who are African, Indian, and colored) will practice in primitive communities; if so, then they will not make the mistake of trying to impose their ideas on their patients and community, but will be able to consider, if not to use, techniques of attitude change.

Defects of the course.—It is too short and should occupy at least 200 hours for all the topics to be dealt with effectively. There should be a great deal more practical work in interviewing, techniques of attitude change, demonstrations of aspects of development, and laboratory work in experimental psychopathology. If possible, we would like to include work on disturbances of psychological functions resulting from cerebral injury evaluation, malnutrition, and other central nervous system disorders.

The position of the course could be improved. It would be better spread over the whole medical curriculum, appropriate topics being taught when students were dealing with related medical subjects; social psychology and developmental psychology would best be taught with social medicine, personality theory with psychiatry, and interviewing with medicine. Such a plan would make for more efficient and shorter teaching. At present, much is taught in the course that does not rightly belong in it. For example, one cannot talk of the psychological effects of brain damage without discussing brain damage, neither can concepts of primitive medicine be taught easily until the student knows a little of general medicine.

Choice of teachers.—Proper personnel is most important in a course of this kind, in which lay teachers who have had little contact with medicine enter the medical curriculum for the first time. Unless the teachers are very well informed, they are likely to feel inadequate in the face of the prestige of the medically qualified person and will, also, be unsure of the status of their own subject in the curriculum. The result of such attitudes is usually to lead to aggressive defense of a narrow academic psychology, or to a distortion of psychology into a reluctant handmaiden of psychiatry. Neither attitude is healthy; the teacher must resist any attempt to enter into com-

petition with medicine, but must be assured of the independent value of his subject and of its relevance to medicine. Unless he is fully aware of the needs of medical students, has some acquaintance with medical problems, and is clear about his own task, he will not succeed in contributing anything of value to the curriculum. In our own case, we have avoided these difficulties—largely because we like to think we never had such attitudes, but also because of the status of psychology in the school. Being recognized as a compulsory examination subject no different except in length from physiology and anatomy, we have not felt ourselves to be intruders into a traditional curriculum; nor has there been any need to defend the subject. It is our own belief that, without this status, the effect of our teaching would have been much less than it seems to have been.

ACKNOWLEDGMENTS

The design of the course and its teaching have been the joint responsibility of all our department; Miss V. Hunkin, Dr. K. Danziger, and Mrs. S. Gillman have all taken part in it, and without their constant cooperation it would not have succeeded. We are also grateful to the Meyrick Bennett Children's center who have provided us with physical facilities and with case material.

Two Years of Experience with Two-Way Radio Conferences for Postgraduate Medical Education*

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DEVELOPMENT OF RADIO NETWORK

DURING THE LAST 2 years, the Postgraduate Division of the Albany Medical College has been conducting an unique experiment with two-way radio communications as a method of conducting postgraduate instruction. The acceptance of this program by the participating physicians has been objectively evaluated. Furthermore, a great deal of information has been accumulated so that, if the experiment were successful, our experience and knowledge could be made available to any medical college which might wish to utilize similar methods and communication facilities.

The results have been gratifying. In fact, the attendance at these conferences has made it possible, with less effort on the part of our Medical College faculty, to bring pertinent postgraduate information to 5 times as many individual physicians as we have been able to attract to our intramural postgraduate presentations during the same period of time.

During the 2 years of this experiment numerous conferences have been held with members of the Federal Communications Commission to determine how, under their rules and regulations, medical colleges could qualify for radio frequency allocations which would make it possible for them to be licensed to use a satisfactory method of radio communication. Initially, there was no obvious way by which one could qualify for such frequency assignments. Recently, however, this problem has been solved so that adequate radio channel allocations may be acquired by any medical college. The fact that our initial experiment could proceed without delay was made possible by the voluntary assistance of more than 70 amateur radio operators who donated their time and skills, and operated the transmitters.[1]

The radio facilities involved in our conference network consist of a high-powered transmitter located at the medical college and transmitters of lesser power located in 21 hospitals throughout eastern New York and western Massachusetts. The hospitals, of course, have receivers so that they can hear our faculty, and we a receiver so that we can hear the participating physicians gathered at each hospital. This, then, gives us the abil-

*We wish to express our appreciation to the Rockefeller Foundation which gave us an initial grant of $4,000 and, after learning of the early results and of our expanded plans, then gave us a grant of $90,000 so that we might continue our experiment without financial pain.

†Associate Dean, Director of Postgraduate Medical Education, Associate Professor of Medicine.

[1] We owe these men and women our sincere gratitude. Although we no longer need to ask them for a continuation of their indispensable contribution, it is quite likely that if they had not demonstrated the great potentials residing in two-way communications, the present method would not now be available.

ity to talk back and forth freely between the medical college and the 21 hospitals. The hospitals which have been participating lie within a distance of 50 miles to the east, the north, and the west. Southward we have included hospitals in Poughkeepsie, Castle Point, and Middletown, New York, which is 125 air miles from Albany. Beginning within the next 2 or 3 months, we shall be able to include hospitals within a distance of 100 miles to the west and 150 miles to the north, east, and south.

Our transmitter is now being located on the top of Mt. Greylock, which is the highest mountain in Massachusetts. This will allow the inclusion of additional hospitals and also greatly extends our possibility of utilizing the skills and teaching potentials within the faculties of several medical colleges. It will be feasible for faculty members from the University of Vermont, from the Boston medical colleges, from New Haven, and New York City to participate in these conferences without leaving their home cities. Many of these areas can be linked to our transmitter by air, and, thus, members of these faculties can take part in the conference presentations. In this way the best from a large number of medical centers can be brought to the practicing physicians throughout most of New England and the eastern half of New York State. This can be done with a minimum of imposition upon the time of these guest faculty members, since they will not need to leave their own medical colleges to participate. The total time required for their participation will be much less than would otherwise be consumed in travel.

Program Plan and Statistical Results

These radio conferences are held 24 weeks a year, November through April. The program plan includes several considerations. A small committee of the Medical College faculty decides what subjects are to be presented and which faculty members will be asked to present them. The presenting faculty team always includes a physician moderator (one of four individuals) and two or three faculty members, depending upon the special areas of interest included within the subject for presentation. Programs are printed and distributed in advance. They indicate the subject and the faculty for each weekly conference. The same material is covered on Monday, Wednesday, and Friday. As an illustration, part of one of the programs is reproduced in Table 1. It can be noted that the topic to be discussed appears as the heading of the second column and that the first column indicates the hospitals participating on this date. Below is the second group of hospitals, participating 2 days later, and the last is a third group of hospitals participating 2 days after that.

Only seven or eight hospitals are included each day, since to include more than that number would make it impossible to answer all the questions. Since the conferences are given 3 days a week, 21 hospitals participate each week. Each conference begins with a 20-minute review of the topic by the faculty and then 40 minutes during which time, in rotation, a hospital asks two questions which are answered; the next hospital then transmits two questions which are answered, and so on, going around and usually completing two complete circuits of the hospitals. An average of twenty questions are answered during each conference. The initial 20 minutes is then repeated during each of the following conferences, but, of course, the question and

TABLE 1

ALBANY MEDICAL COLLEGE
TWO-WAY RADIO CONFERENCES*

Hospital	"Indications for Surgery in Chronic Abdominal Disease" (Dr. Fradkin, Dr. Glasier)	"Utilization of Special Diagnostic and Therapeutic Facilities" (Dr. Formel, Dr. Policoff, Dr. Van Woert)
Amsterdam City (Amsterdam) Schoharie Comm. (Cobleskill) Glen Falls (Glen Falls) N. Littauer (Gloversville) Saratoga (Saratoga Springs) Ellis (Schenectady) Glenridge (Schenectady)	Mon., March 25	Mon., April 1
V.A. (Albany) M. McClellan (Cambridge) Hillcrest (Pittsfield, Mass.) St. Clare's (Schenectady) Leonard (Troy) Samaritan (Troy) St. Mary's (Troy)	Wed., March 27	Wed., April 3
Albany (Albany) St. Peter's (Albany) V.A. (Castle Point) E. Horton Mem. (Middletown) Benedictine (Kingston) Kingston (Kingston) St. Francis (Poughkeepsie) Vassar Bros. (Poughkeepsie)	Fri., March 29	Fri., April 5

*A Public Service Contribution by the Area Amateur Radio Operators. Approved for Category I Credit by The American Academy of General Practice.

answer period varies each day. It is believed that one of the reasons for the success of this method of presentation lies in the fact that, within the topic under discussion, the participating physician has an opportunity to have his questions answered, and, thus, he may direct the conference so that he obtains the information he most desires.

At each hospital there is a physician who acts as local moderator. As the participating physicians originate questions, they write their questions on a 3 x 5-inch card, pass it forward to the local moderator who, in turn, transmits the questions to the medical faculty in Albany. This allows the local moderator to eliminate questions from his group which have been asked before it is his turn to transmit. It also makes the questions practically anonymous, since only the local moderator knows who, within his own group, wrote the question and since the author of the question is not identified when the question is transmitted. We believe this makes for freedom in that many physicians will ask questions in which they have great interest but about which they may have considerable reluctance if they were to be identified with the question. At least, we have found that questions flow more freely in this type of conference than they do from an "in person" group audience.

Thus, the two-way radio facilities make it possible to have ease of communications, make it possible for the physician to ask questions and receive

answers, and make it possible for him to choose what he wishes to have discussed.

In relation to the possible lack of visual teaching in this method, there is actually little lack. Charts, graphs, and outlines are mimeographed in advance and sent to the local moderators who, in turn, distribute this material at the beginning of each conference. With this material in hand, we find no particular need for additional visual aids. It is true that there are certain topics, such as might be used in presenting the subject of dermatology, which could be best understood if visualized. However, there are many subjects which do not depend upon any visualization which cannot be furnished by mimeographed teaching aids.

People sometimes ask why we don't utilize television. Actually, there are several reasons. First of all, the initial equipment is more than 10 times as expensive. Secondly, the programming of television is time-consuming and expensive, requiring a large number of full-time individuals. And, thirdly, television is a different technique. This is *two-way* communication. Television is one-way. We believe the effectiveness of these conferences lies in the two-way communication facilities. We do not believe that straight broadcast information would generate very much enthusiasm as compared with that which has been produced by these two-way radio conferences.

The conferences are given from 12 noon to 1:00 P.M. This time was chosen in an effort to avoid an extra meeting for the doctors. It was assumed that most physicians take the noon hour off from their practice for lunch and relaxation. In fact, in at least half of our hospitals the doctor is able to obtain his lunch and participate in the conference simultaneously. In this way he does not add time to his busy day. We also make it a point to stop the conferences promtly at 1 o'clock so that the physician can depend upon being able to complete the conference and still meet their early afternoon commitments on time.

From the beginning, we have objectively evaluated our results. The local moderator requests each physician who attends to fill out a 3 x 5 card (Table 2). On this card he places his name, address, his type of practice, and his personal rating of the conference. You will note that there are boxes for him to check which in-

TABLE 2

ATTENDING PHYSICIAN IDENTIFICATION CARD

Please complete one of these cards for each conference.
Hospital: Date:

Name:

Address:

Type of Practice:

Opinion of Conference (check one): Excellent ☐
Good ☐
Comments and Suggestions: Fair ☐
No good ☐

dicate that he thinks the conference is either *Excellent, Good, Fair,* or *No Good.* There is also a place for his comments and suggestions in relation to future conferences.

Table 3 will show you a summary of the conference evaluations during the 2 years. On the left is the 1st year and on the right the 2d year. You will note that the *Excellent* percentages are within 6 per cent (from 52.5 per cent to 46.7 per cent). The combined *Good* and *Excellent* percentage is 95 per cent in the 1st year and 96 per cent in the 2nd year.

In this way we obtain the opinions of the physicians who have attended the conferences. These cards also allow us to have accurate attendance figures. These are actually minimum attendance figures. The local moderator did not always obtain a card from each physician. Table 4 gives the individual attendance for the two years, the percentage of practicing physicians and house staff, and the total attendance.

The percentage of specialists, general practitioners, and house staff attending the radio conferences is given in Table 5.

Table 6 shows the total number of individual physicians attending radio conferences and intramural postgraduate programs during the last 2 years. It will be noted that the number of individuals attending the radio conferences dropped 115 the 2d year. It can be recalled that the total attendance (just under 4,000)

TABLE 3

PARTICIPATING PHYSICIANS' EVALUATION OF RADIO CONFERENCES

Rating	1955-56 (percent)	1956-57
Excellent	52.5	46.7
Good	42.1	49.3
Fair	5.0	3.7
No Good	.4	.3

TABLE 4

RADIO CONFERENCE ATTENDANCE

	1955-56	1956-57
Individual physicians	675	560
Physician attendance per week		
First half	176.3	177.6
Second half	170.3	168.3
23 weeks	173.5	172.8
Percentage practicing physicians	74.0%	70.5%
Percentage house staff	26.0%	29.5%
Physician total	3,991	3,974
Other total (nurses, technicians, etc.)	515	388
	4,506	4,362

TABLE 5

TYPE OF PRACTICE OF PHYSICIAN ATTENDING RADIO CONFERENCES

Type of practice	1955-56	1956-57
	(per cent)	
Internal medicine	17.1	11.5
Surgery	9.0	10.7
Other specialties	23.0	20.4
	49.1	42.6
General practice	24.9	27.9
House staff	26.0	29.5

was the same for each year. Fewer physicians came the 2d year, but those who did attended more often.

FUTURE POSSIBILITIES AND FINANCING

Let's take a look into the future. If on a map of the United States we draw 100-mile radius circles around each medical college, we enclose within each circle an average coverage area from a well located transmitter. Next, visualize a line from Madison, Wisconsin, southward to Springfield, Illinois, and then southeastward to Columbia, South Carolina. East and northeast of this line is included approximately one-fifth of the area of the United States. A selected nine circles in addition to the one around the Albany Medical College cover approximately 85-90 per cent of the total land area in this large region, and we know that they do cover more than 95 per cent of the population (both physician and lay). Within this region there are 80 million people, 80 thousand physicians, 900 thousand hospital beds, and 44 medical colleges. Ten stations in this area could bring the benefits of postgraduate education by way of two-way radio to a potential 70 or 80 thousand physicians and, through them, influence the medical care given to 70 or 80 million people.

There are other great potentials for this expanded view. There is a great need for emergency medical communications. If these ten stations were to be established (and I would hope others, also), each medical center station could have 40 hospitals with which it could conduct two-way radio communications. There would then be 400 of the major hospitals in this region in communication with one of their local medical centers. This would make an ideal emergency medical network and would allow the

TABLE 6

INDIVIDUALS ATTENDING RADIO CONFERENCES AND INTRAMURAL PROGRAMS

Year	Radio conferences	Intramural programs
1955-56	675	150
1956-57	560	110

rational and effective distribution of physicians and medical supplies during an area of national emergency.[2]

In relation to the cost of the equipment, the remote broadcast pick-up units which are used to transmit the questions from the hospitals to the medical center and a receiver may be purchased and installed for less than $700. For $170, they may be equipped with a power pack which will operate from an automobile storage battery; or, for $400, they may be run by alternating current developed by a gas-driven, 400-watt automatic standby power plant.

The master transmitter at the medical center, and its associated equipment, will cost between $5,000 and $10,000. Antennae, towers, studios, etc., will cost from $8,000 to $16,000. The total cost will range from $32,000 to $50,000.

Some simple arithmetic applied to these figures indicates that, if twenty hospitals surrounding a medical college would each contribute from $1,600 to $2,500, all equipment and all associated expenses to establish the entire communications network, including the equipment at the medical college, might be purchased and installed. If 40 hospitals were included in such a network, the cost would be an average of $1,150-$1,600 per hospital.

Although we have not had experience with our new network equipment, we believe that this equipment for the medical college and twenty hospitals can be run for these medical conferences at a cost of $500 per year per hospital. This, then, means that the costs are not prohibitive—in fact, are quite reasonable, and that any medical college can develop these communication facilities and utilize them in postgraduate medical education with very little, if any, expense to the medical college.

As for other potentials, the use of these facilities is probably limited only by the imagination applied. In our own instance, we are transmitting on 90.7 megacycles which is within the noncommercial FM educational broadcast band. The questions come to the Medical College transmitter on 153 megacycles and are simulcast from this transmitter so that everyone hears the questions and discussion from each originating point. In addition to the groups of physicians participating in hospitals, it is inexpensive for a physician to buy an FM receiver for his home or office. These cost from $25 to $100. He can participate by listening to the conference at home; and, if he should have a question, he may telephone the nearest hospital which has a transmitter. They can relay his question to the medical college. In fact, his telephoned question can be fed directly into their transmitter so that his question is heard directly. If the busy practitioner is unable to be at the hospital or at home at conference time, if he has any type of recording device (a dictating machine or a tape recorder), this can easily be connected to his FM receiver, his wife or the office girl can turn the receiver on at conference time, and the conference can be recorded. He may then listen to it at his convenience and keep it for a permanent record.

In addition, special evening courses are planned for hospital groups. For example, there will be courses in electrolyte therapy, on metabolic problems, and even (with duplicate teaching aids for each hospital group) courses in the interpretation of electrocardiograms.

[2] Recently, I have served on the Radio Communications Committee of the AMA, and certain recommendations have been submitted to the Federal Communications Commission, which may help obtain approval for the use of these frequencies for emergency communications.

Reasons for Success of Conferences

The Two-Way Radio Conference method saves physicians much valuable time. If the physicians who have actually participated in our two-way radio programs had traveled to Albany for the information they have received, the aggregate travel time would have been more than 15,000 hours. In fact, they would have traveled more than 500,000 miles.

Part of a survey made by Dr. Douglas Vollan for the Council on Medical Education and Hospitals of the A.M.A. is tabulated in Table 7.

Before listing some of our conclusions, we wish to make it clear that we do not suggest that radio conferences replace intramural—in person—postgraduate education. There is a place, a need, for both.[3]

Conclusions

1. Two-way radio conferences are the most effective method of obtaining participation in postgraduate medical presentations.

2. The facilities for these conferences can be obtained and installed for a reasonable expenditure.

TABLE 7

Report on Survey
Council on Medical Education and Hospitals
1952-1955

Deterrents to Attendance at Postgraduate Courses by Practicing Physicians (Opinion of 5000 Physicians)	Per Cent
1. No one to care for patients while away	55
2. Courses given at unsuitable time	47
3. Costs involved	42
4. Multiplicity of other meetings	42
5. Subject matter does not meet needs	40
6. Lack of courses in physician's area	31
7. Previous unsatisfactory experience with poor courses	23
8. Lack of information on courses	18

It can be noted that the four most important deterrents are eliminated by our radio conferences (numbers 1 through 4). Of the remaining four, numbers 6 and 8 are also eliminated; and, since the participating physician directs much of the subject matter, number 5 is somewhat eliminated. Very few of the listed deterrents remain when the two-way radio conference method is used.

3. The conferences can be conducted for 6 months a year if each of twenty hospitals makes a yearly donation of $500.

4. The faculties of several medical colleges may easily combine talents by radio and thus bring practicing physicians an opportunity for direct participation with physicians of outstanding talent in their specialties; yet these practicing physicians may remain at home in contact with their practices.

5. Faculties, participating physicians, and all concerned save much

[3] I also wish to invite all of you who are interested to write to us. We shall be pleased to give you any information we have which may be of help to those of you who wish to explore the possibility of establishing your own radio conference facilities.

time and effort relative to the numbers benefited.

6. It would be desirable to establish similar facilities at many medical colleges.

7. If permission can be obtained from the Federal Communications Commission, these radio networks would make excellent emergency communications facilities.

8. This method gives each medical college an opportunity to more easily fulfill its responsibilities in the important field of postgraduate medical education.

An Integrated Teaching Program between the Department of Psychiatry and the Basic Sciences*

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IT HAS BECOME increasingly apparent, particularly during and since World War II, that the psychological and social understanding of human beings was not being successfully or sufficiently taught in the medical curriculum. Indeed, a number of studies suggest that the medical curriculum in recent times has tended to educate the average doctor away from his basic intuitive understanding of those areas. Many of the reasons for this and the results thereof have been discussed by others. In recent years, medical schools have been increasing the amount of teaching time devoted to studies of human behavior and seeking ways to diminish the resistances ordinarily raised in many medical students and doctors to considering the psychological aspects of their patients.[1,2,3,4,5]

It has also become apparent that the medical curriculum has tended to become more fragmented with rather rigid compartmentalization of subject material often for artificial reasons. Consequently, there is a trend in many medical schools to attempt to remove insofar as possible the artificial departmental barriers and to help integrate knowledge as it is acquired by the student. Examples of this are the new program at Western Reserve Medical School, the experimental integration of certain basic sciences at Harvard,[6] and the planned integrated approach at the new Medical School at the University of Florida.[6]

Another problem being faced recently by medical educators, particularly those concerned with the study of human behavior, has been the development of ways of teaching the basic science of human behavior. In general, in most places where basic principles of medical psychology or beginning psychiatry are taught in the first 2 years, it has been done largely by lectures and reading as-

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signments, at best by small group discussions. The use of the laboratory for performing experiments first-hand, which has proved so fruitful for most of the basic sciences such as physiology, biochemistry, and anatomy, has not been possible for psychiatry. Much difficulty in this is inherent in the nature of the material to be studied. Two chief approaches that have aimed at improvement have been the study early in the curriculum of patients and the participation by the student as a patient in group psychotherapy. The use of the former method has much to recommend it, and we believe may be developed very fruitfully. However, we feel that there are certain basic aspects of the study of human behavior which are difficult to teach in this fashion and that there are definite limitations in this technique. The soundness of the latter approach of involving the students in group psychotherapy is, we believe, still open to valid doubt. It seemed to us at the beginning of this experiment that there was a good possibility of developing some actual student experiments which would be useful in the teaching of the basic science of human behavior.

This is the report of a pilot teaching experiment of two years' duration.[1] This program was designed to achieve some part of the first two goals mentioned—those of increasing the awareness of psychological and social factors, and integration across inter-departmental boundaries. Furthermore, we wished to ascertain whether we could develop some teaching exercises which could form the nucleus of the laboratory part of the basic science of human behavior.

The method of procedure largely determined by local conditions at the UNC School of Medicine is as follows: Three members of the Departmen of Psychiatry were involved initially, and the plan from the beginning was to work within the framework of the existing basic science courses with the co-operation of the members of the departments, to add the parameters of psychological and social behavior wherever pertinent to the material already being taught. We emphasize again this was not a new or separate course. At the time of the inception of this program, the Department of Psychiatry, along with the Department of Preventive Medicine and members of other departments, gave a course in clinical introduction or human ecology which met 2 hours a week throughout the first year. During the 2d year, the Department of Psychiatry gave a didactic course which met twice a week for 1½ hours, during which the principles of psychosexual development, psychopathology, psychodynamics, clinical psychiatry, and medical psychology were presented.

We had certain ideas in advance about the areas in which we could fruitfully work. However, we saw and discussed the general purposes of this program with members of each of the preclinical or basic science departments. In actuality, many of the useful ideas came from other departments or perhaps, more accurately, from the mutual interchange of ideas. As might be expected in a program of this sort, a large factor in determining whether or not cooperative ventures came to fruition was the interest, breadth of vision, and willingness to try new techniques on the part of the individuals in the other departments. The appropriateness of the subject matter for joint efforts was not the prime

[1] Supported by the United States Public Health Service Institute of Mental Health, to whom we are most grateful for support.

determining factor. We finally carried out programs with the Departments of Biochemistry, Pharmacology, and Physiology.

Specific planning for joint exercises was difficult. We found no clear precedent for this type of approach in the literature, and had difficulty finding experiments involving both psychological and either physiological, pharmacological, or biochemical components, which were not of a high order of complexity, and which could be done with some reasonableness in a student laboratory. We had anticipated that one of the most fruitful areas would be in studying various aspects of the anxiety reaction, or, perhaps more broadly, the response of the individual to various types of stress, particularly psychological. How to find situations which were stressful or to produce them became, as everyone who has worked in this experimental field knows, very difficult. One of the other problems that has been constantly faced in this program is the fact that it is so difficult to deal with meaningful feelings of psychological events without the subjects' having to reveal a considerable amount of very personal material. For example, during the pharmacology course, one of the traditional experiments has been for a number of the students to ingest a fairly considerable amount of alcohol in the form of a highball; subsequently, blood levels are followed, and excretion is measured. Informal observation has revealed, as might be expected, that the behavior of the different subjects varies to a striking degree, even though superficially all conditions would seem to be identical. This would be a good opportunity to communicate the principle that the behavior resulting from substances toxic to the central nervous system or inducing delirium is mainly determined by the personality dynamics of the individual and his response to the situation. The great difficulty, however, is how to make these things evident without exposing more of the student's highly personal feelings than is comfortable for him. How to accomplish this is one of the important questions in this area of teaching, and one about which we are still learning much. The one fact we are reasonably certain of is that, handled in an appropriate fashion, it is possible to bring out considerably more inner feelings in the group than is ordinarily thought to be feasible.

Somewhat to our surprise, one of our most fruitful associations has been with the Department of Biochemistry. The laboratory exercise, during which gastric physiology and biochemistry are studied, proved to be a very profitable joint enterprise. In addition to the time-honored test of stimulating gastric function with the study of the volume of acid response thereto, some new aspects were introduced. First of all, the students wrote descriptions of their subjective experiences and noted their psychophysiological responses to the situation of taking the stomach tube. One group of subjects was isolated from the main body of the class and told that they were to receive a very pleasant meal on the house. There was a choice of menu. This was discussed, the meal ordered, and subsequently steak dinners with all the trimmings were brought to these subjects. Multiple gastric samples were taken in a control period, after hearing about the anticipated meal, during the waiting period, and again after the meal had been brought in and placed before the subjects. One group in the first year was exposed to the sight of a very unappetizing meal which had been

allowed to sit several days. The following year, a group, after having heard about the pleasant meal, was subjected to a laboratory in which the smell of scatol was very strong. Results from these latter two group studies were equivocal. The responses to the stimuli of hearing about and seeing the pleasant meal, were, however, quite striking in many cases. The end-results indicated that this psychological stimulus could be as effective a stimulator of gastric secretion as the ingestion of alcohol. It was found that there was much greater variability of individual response to such a stimulus as compared with that following the stimulus of alcohol.

In conjunction with studies on carbohydrate metabolism, patients receiving insulin coma therapy were observed in small groups, and blood samples were taken and analyzed for glucose at the height of the coma. Psychological responses to special diets including starvation were studied by interview technique and the results presented to the class.

One of the most striking teaching exercises we have been associated with occurs during the course in biochemistry; and, while in some ways it does not fulfill all of our goals, because much of it does not directly pertain to biochemistry, still, it is such a worth-while teaching experiment that we will describe it in some detail. This we have termed the venipuncture experiment. The students learn to do venipunctures on one another early in their 1st year while they are taking biochemistry. This is the first experience of actively performing a doctor's role. The technique for this, as set up by the chemistry department in the past, was used. The class was split up into groups of three students, one of whom served as the subject, one of whom served as the person who did the venipuncture, designated the "experimenter," and one whom we designated the "analyst" responsible for getting the blood sample after it was drawn and starting to prepare it for future studies by making a Folin-Wu filtrate. We capitalized on this by pointing out that this was also the model of much present-day psychophysiological research in which the experimenter and subject are in turn observed by a supposedly uninvolved observer. We anticipated from our own experiences as students and later as teachers, that this would be a stressful experience. Such indeed proved to be the case. During the last laboratory period before the venipuncture, all the students made some simple, brief objective and subjective observations on each other and recorded them. These included pulse rate, respiratory rate, comment on the degree of hand sweating, and generalized sweating, indications of presence or absence of a tremor, indication of the presence or absence of a feeling of tension or other subjective symptoms. These observations were made again immediately prior to the venipuncture and immediately thereafter. After an initial demonstration of how to proceed, the group took their turns performing the venipuncture under the supervision of a resident from the Department of Medicine. That this was a stressful experience was indicated by the fact that over 90 per cent of the subjects and the experimenters showed at least one physiological change from the control. Surprising to us was the fact that a very high percentage of the analysts showed some evidence of psychological or physiological response to stress, which allowed for the introduction of a discussion of sympathy. This experiment has been performed for 2 years now, and the

numerical results in terms of numbers of the different classes of participants who responded were strikingly similar, as was the number of different types of responses when compared with one another, as, for example, the fact that increased pulse rate of 10 beats or more was the most common response. The patterns of responses were somewhat different between the subjects and experimenters from the subjective accounts that all the participants gave. From intensive interviews that were carried on with several of the groups it was possible to illustrate the fact that the stress for the subject was quite different from that for the experimenter. The stress for the subject was, of course, concern about injury, while for the experimenter it was either concern about his performance or both. We feel there is some congruence between these responses and the concepts of harm anxiety and shame anxiety as suggested by Grinker.[4] A number of other interesting observations were made which, it is hoped, will be the subject, after more experience, of a separate report. This turned out to be the model of a method with which to demonstrate simply and clearly, psychophysiological response to stress and, moreover, to illustrate the fact that there are different types of stress. It is our opinion that the most important reason why this is so successful in studying stress is that it is not artificial. We were utilizing a situation that occurred for quite other reasons.

A number of joint teaching experiments have been carried out with the Department of Physiology. Members of our group participated intimately in the exercise in which various mechanisms for the maintenance of proper water balance were studied. Particularly in this connection, the endogenous elaboration of anti-diuretic hormone in response to the psychological stress of the first experience with eschemic pain was demonstrated. This part of this experiment, performed as reported by Kelsall,[9] and Mirsky and Stein,[13] consists in establishing a steady diuretic state by maintaining a constant water load and then applying a blood pressure cuff above diastolic pressure for 9 minutes. Individual variations from the usual expected result in other classical water balance studies were discussed and in some instances related to psychological events.

The subjective and objective results of continuous intravenous infusions of epinephrine and nor-epinephrine were demonstrated in student subjects. Then, small groups set up model clinical research teams, and ran double blind studies of the effects of these substances and a placebo in other student subjects. The results of these experiments were striking in terms of both physiological and psychological results providing an opportunity for discussion of the recent studies by Funkenstein[3] and others showing the correlation of behavior patterns with the presence of epinephrine or nor-epinephrine in the circulation, anxiety or anger directed inward being associated with epinephrine patterns of response and anger directed outward being associated with nor-epinephrine patterns of response.

In another exercise, the problem of pain and its wide ramifications was discussed, and various uses of the Hardy-Wolff dolorimeter[5] for the experimental study of pain were demonstrated, utilizing student participation in the handling of the apparatus. The problem of producing psychologically stressful situations under controlled laboratory conditions was

studied, and the use of the sonic confuser as demonstrated by Funkenstein was used as a means of illustrating one successful technique of producing a stressful situation. It is anticipated that considerably more liaison with physiology can be developed. An especially pertinent area for exploration, we feel, is perception in its various modalities.

With the Department of Pharmacology, in addition to a collaboration in the experiment on the effects of alcohol, an elaborate double blind experiment was devised and performed dealing with drugs that have important subjective and central nervous system effects. This turned out to be a most instructive and interesting study which has already been reported on elsewhere.[7] A brief description of the experiment will be given here. The class was divided into pairs, with one of the pair serving as subject and the other as observer. By use of a strictly double blind technique, five different medications were given intramuscularly in 2-cc solutions. The students were told in advance that this would be a double blind experiment and were given a list of possible drugs, about 50 per cent of which were actually used. The drugs and their dosages were morphine sulfate, 15 mg.; scopolamine hydrobromide, 1 mg.; dextro amphetamine sulfate, 10 mg.; sodium amobarbitol, 200 mg., and isotonic sodium chloride as the placebo. As it turned out, the expectation of the group seemed to be that they were to be tricked; and for most of them, the worst trick they could imagine would be to have the placebo and be caught thinking they had received some active substance. A considerable number of observations were made during the course of the experiment, including running accounts by subject and observer of everything noted, a brief mental status exam at intervals, check list of physiological signs and symptoms, and, most usefully, a subjective questionnaire as devised by Lasagna, von Felsinger, and Beecher,[10] designed to assess subjective phenomenon such as mood, mentation, and sedation or alerting. One of the most striking outcomes of the experiment was that there tended to be a general dampening of perceived effects, as evidenced by the fact that both amytal and dexedrine were perceived by the majority to have been saline, and the scores on the various questionnaires, particularly the subjective questionnaire, reflected this. Moreover, in this situation dexedrine scored on the subjective questionnaire as a sedating rather than an alerting drug and as being dysphoric rather than euphoric. Also surprisingly, on the mental status, there was objective evidence of interference with cerebration on the cast of two subjects taking dexedrine, as evidenced by slowing and making of mistakes on serial subtractions of 7's from 100. This was more objective evidence of interference with cerebration than was obtained from any other drug except scopolamine. Morphine was perceived to be the most consistently potent drug in those dosages. Contrary to what might be expected from the usual textbook descriptions, but in line with what Lasagna, von Felsinger, and Beecher[10] and others have recently pointed out about responses of normal people under normal conditions, the morphine was perceived as a universally very unpleasant drug. Interestingly, while subjectively on the questionnaire the subjects scored high in perception of interference with mentation, the objective evaluation showed that there was only minimal interference with mentation by morphine. Scopolamine was perceived as a very active sedat-

ing drug and objectively showed most interference with cerebration. We felt that this experiment accomplished a number of things. First of all, it clearly demonstrated how psychological and social situations can strongly modify expected drug actions. Secondly, it demonstrated that in such a situation in normal subjects, the drug actions are somewhat different from those frequently described in textbooks usually derived from clinical observations of sick individuals. Thirdly, it was a very useful teaching device, since it gave the students first-hand experience with use of potent drugs in human subjects as contrasted with the usual pharmacological studies of drugs in animals.

We feel that to date this program has been successful in achieving some of its goals. Members of the other departments have been pleased with it for a number of reasons. In some cases they feel that this program has increased the interest and meaningfulness of some of the laboratory procedures, as, for example, the interest aroused in biochemistry when analyses of blood glucose from patients in insulin coma showed such strikingly low values, and the adding of diets to the gastric function studies. Others commented on the fact that this program made for exercises more nearly approaching clinical situations, as, for example, in the pharmacology study in which the experiments were performed on human beings instead of animals. We feel that, throughout the first 2 years, we have made a start in keeping the importance of psychological and social aspects of human behavior before the students and in bringing them in relation with other disciplines. A continual focus throughout this program has been to increase the student's ability to introspect and record his own subjective feelings. Comparing the type of subjective reports written at the beginning with those later on in the student's experience, we feel there has been definite improvement in this ability. Moreover, we feel that we have continually been able to point up some of the techniques and pitfalls of clinical research, emphasizing particularly the point that in clinical research one has to take into serious account the fact of the increased complexity of the human animal as compared with infrahuman animals. Last, and perhaps most important, it is our impression that the communication and exchange of ideas between departments have led to a much greater understanding of different goals and points of view, and, in the case of those of us working in the Department of Psychiatry, have led to several new research ideas and programs.

Summary

This has been a discussion of 2 years of experience at the University of North Carolina School of Medicine with a pilot teaching program in which members of the Department of Psychiatry worked with the Departments of Biochemistry, Pharmacology, and Physiology to add, where pertinent in these courses, the parameters of psychology and sociology.

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ANNOUNCEMENT

Due to the increased demand for reservations, the Annual Meeting of the Association of American Medical Colleges will now be held October 13-15, at the Sheraton Hotel, 1725 Pennsylvania Blvd., Philadelphia, Pa., instead of the New Ocean House, Swampscott, Mass.

This will also include the week-end meetings of committees (October 11-12), the Medical School-Teaching Hospital Section (October 10-11), the MEND coordinators, and the usual session with representatives of the Federal services (October 11). The Teaching Institute and the Continuing Group will be held in Swampscott as originally planned (October 8-11).

During the latter part of July, those persons desiring reservations will receive a copy of the preliminary program and a hotel reservation card.

An Experiment with the Group Interview in the Selection of Medical Students

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IN 1952, THE committee of the faculty of the University of Illinois College of Medicine charged with the rating of individual applicants for admission to the College began a re-evaluation of its criteria for the selection of students. The personal interview, which was required for all applicants, was emphasized as an important part of the evaluation. It was considered to be the principal means of recognizing diverse individual attributes and interests which might moderate rigid adherence to the undergraduate grade average as a selection criterion.

A statistical analysis showed that the interview was a significant factor in the acceptance or rejection of an applicant only when the faculty interviewer reported an extremely favorable or unfavorable reaction—a situation that occurred with only approximately 15 per cent of the candidates. The other interviews were both varied in quality and at the same time stereotyped. It was learned from an unsuccessful applicant that the premedical students on at least one campus were holding interview preparation sessions in which a poorly informed student grapevine supplied information deemed generally most acceptable to the medical faculty. The resourceful student supplemented this with specific data about his faculty interviewer obtained from the library copy of "American Men of Science" or "Who's Who in America" in further advanced preparation for the interview.

It seemed obvious that the procedure of the personal interview was far too standard and the skill of the many faculty interviewers much too varied to give this procedure a position of valid contention beside so time-honored a measure as college grades. It was in this atmosphere and because of a continued desire to evaluate the personal qualifications of each candidate that the present experiment was designed with the indirect unstructured or group interview as a technique for personality evaluation.

METHODS

In 1954, every fifth applicant, so designated by the receipt of his application was assigned to a group with four to eight peers who were given an appointment for a group interview. Two assessors, one each from the Departments of Medicine and Psychiatry met with the group. In the subsequent year, six students were selected for each group by a less random method but without regard for scholarship. In the 3d year, additional pairs of faculty assessors participated in the group interviews.

The assessors attempted to establish a cordial climate by the introduction of the members in the group with a few minutes of personal history. Slips of paper with two topics

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for discussion were circulated among the participants. From this time on the candidates were asked to conduct themselves in a discussion of the items without deference to the assessors. Approximately 45 minutes was allowed for each question, with a short recess between them.

The selection of topics was intended to initiate a scientific discussion and one with humanistic orientation. The ideal topic had no easy, correct, or generally accepted solution, one in which discussion was not greatly dependent upon information from a specific course or subject, and posed enough room for differences of opinion to permit the logical development of controversy. Organizing such questions was the most difficult and perhaps most critical part of the procedure. The following are examples of questions that were used.

Scientific:

1. Illustrate and discuss the relationships and distinctions between the physical and biological sciences?

2. Discuss the scientific method, its relationships and differences from scientific data and the general way in which each contributes to the sciences.

3. Discuss, differentiate, and illustrate logic, validity, proof, intuition, and philosophy as they apply to the sciences.

Humanistic:

1. An adopted child should always be told of this fact before he is 8 years old.

2. Discuss the justice of expelling a good premedical student for participation in a student riot.

TABLE 1

THE UNIVERSITY OF ILLINOIS
College of Medicine
GROUP INTERVIEW REPORT

Name of Candidate: Date:
Directions to Interviewer:

In order to establish as much uniformity as possible it is suggested that you rate each candidate from 1 plus to 4 plus, with 1 plus as the lowest rating and 4 plus as the highest rating.

1. Appearance
2. Poise (manners and conduct)
3. Language
4. Assertiveness
5. Relevance
6. Grasp of topic
7. Analysis and summary
8. Imaginativeness
9. Objectivity
10. Acceptance of criticism
11. Adjustment to colleagues
12. Adjustment to assessors
13. Flexibility (vs. rigidity)
14. Idealism (vs. practicality)
15. Integrity
16. Motivation (for medicine)

Please rate each person on the basis of comparison with the other five members in his group.

NUMBER IN GROUP INTERVIEWED_____ CANDIDATE'S RANK IN GROUP INTERVIEWED_____

GENERAL RATING (Check one) Unacceptable_____ Reserve_____ Acceptable_____ Desirable_____

COMMENTS:

_____
Signature of Interviewer

3. The medical profession has an absolute obligation to provide medical care in backward areas.

The assessors independently rated each person on sixteen predetermined attributes in comparison with his group peers (Table 1). By observing the relevance and objectivity of the individuals' discussion, the introduction of new aspects of the topic and precise analysis or cogent summary, it was hoped that the capabilities of the relatively quiet person might be recognized and minimum premium placed on loquacity. Upon these considerations the applicants were ranked numerically in their group, and, finally their general rating as candidates for medicine was stated as desirable, acceptable with confidence, acceptable with reservations, or nonacceptable, and comments were written about each person.

Results

Evaluation by group interview. There was a general relationship between the rating given applicants on the various personal and intellectual characteristics and the general rating of acceptability. Among persons rated as desirable, the characteristics that, on the average, were rated highest were: integrity, grasp of the topic and assertiveness. Individual applicants in this group, however, were rated over the entire range of description, from poor (1+) to superior (4+) in five of the fourteen characteristics evaluated. The data regarding motivation and language were insufficient for analysis.

Among applicants who were considered unacceptable, the characteristics that, on the average, were rated poorest were: conduct, objectivity, analysis, and adjustment to the assessors. Individual applicants in this group were rated over the entire range in assertiveness.

The general rating and the mean group score for a single characteristic showed no rank-difference for nine of the fourteen individual attributes. Only personal appearance had a considerably lower rank-difference coefficient (0.6). When

TABLE 2

Rank Order and Relationships of Characteristics Assessed in Group Interviews according to Their Correlation with the General Ratings and Discrimination among Applicants

Rank order*	Characteristic	Probability of independence versus numbers				
		1	2-4	5-7	8-13	14
1	Manners and conduct	—	.26	.16	.08	<.01
2	Analysis and summary					
3	Grasp of topic	.26	—	.21	.13	.01
4	Objectivity					
5	Acceptance of criticism					
6	Relevance	.16	.21	—	.22	<.05
7	Flexibility					
8	Adjustment to assessors					
9	Assertiveness					
10	Imaginativeness	.08	.13	.22	—	.08
11	Adjustment to colleagues					
12	Integrity					
13	Idealism					
14	Personal appearance	<.01	.01	<.05	.08	—

*Nos. 2-4, 5-7, 8-13 are characteristics that within these groups were of quite similar usefulness.

both correlation to the general rating and degree of discrimination among the groups were considered, the characteristics could be ranked and placed in groups of similar usefulness, as shown in Table 2. Statistical analysis showed only personal appearance to be significantly independent of the other characteristics in relation to the general rating. Conduct, analysis, grasp of the topic, and objectivity were used most discriminatively and they approached significant independence from the ratings on adjustment to the assessors, assertiveness, imaginativeness, adjustment to colleagues, integrity and idealism, which were the least discriminatory under the conditions of evaluation.

It was generally possible for the assessors to rank the applicants in the group with some conviction and satisfaction (Chart 1). From these ratings the applicants were distributed more evenly in the four general categories of acceptability than was the case with personal interview of the same students. The principal difference was in the larger number of applicants rated as desirable on the basis of group interview—32 per cent, as compared with approximately 15 per cent by personal interview. These were nearly all shifted from the second most acceptable category of applicants. Five to 10 per cent of persons were judged nonacceptable and 20 per cent acceptable with reservation by both interview techniques. Thus, the group interview accomplished one of its goals, a broader distinction among qualified applicants.

With regard to particular individuals, the two types of interviews were in agreement in only 40 per cent of the observations and showed major disagreement in 10 per cent of the cases. The two assessors who observed

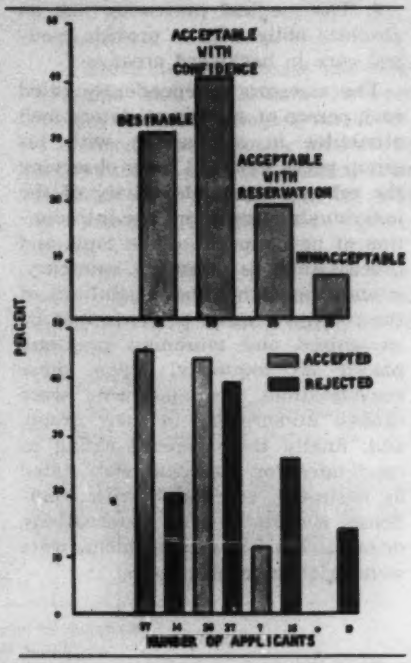

CHART 1. *The distribution of applicants according to their rating in group interview and the acceptance or rejection of the applicants by the Admissions Committee.*

96 subjects together in group interviews over the 3-year period gave 76 per cent of the individuals the same general rating; they differed by one category in 22 per cent and reported a major difference for only two persons. When six faculty members were used as assessors in a variety of combinations the evaluations agreed in only 55 per cent, differed by one category in 42 per cent, and by two categories for 3 per cent.

The lower panel of Chart 1 shows how the applicants fared when the committee on admissions considered all their qualifications except the results of group interview. Nearly 90 per cent of the accepted students were ranked in the top two categories by the group assessors. None of the

ten persons judged nonacceptable on the basis of group interview was accepted after evaluation of the other prerequisites. From these results it appeared that the group interview accurately identified the poorest applicants. Among the other candidates who were not accepted, one-fifth had been judged desirable by the group assessors.

To identify the outstanding features about applicants who were rated desirable or undesirable, descriptive adjectives were gleaned from the assessors' comments. For characterization these lists were given to a graduate student in psychology who was unaware of the difference between the lists. Contradictory terms were deleted, and the others were grouped in categories that described physical appearance, intellectual function, interview behavior, general attitudes, and miscellaneous attributes. The highest degree of inconsistency occurred among the adjectives used to describe applicants judged as desirable. The typical subject was somewhat older, tended to be larger in physique, and seemed quite energetic. He displayed a mature approach to most problems, was a conceptual thinker, had an awareness of socioeconomic affairs, and demonstrated more than merely circumscribed interest in academic matters. He seemed well motivated by rather high ethical standards, and these were based on an idealistic and humanistic nature. He was not afraid to question his own motives and was secure enough to take the philosophic approach when faced with difficulties. He assumed an active leadership role in interpersonal situations.

The group of adjectives used to describe the least desirable candidates were highly consistent. The typical one was characterized as very young in both appearance and behavior. He had difficulty in communicating, partly owing to emotional problems which interfered with his ability to think clearly, express himself correctly, and to get along with others. He was rigid and antagonistic when threatened and would hide behind a façade of authoritative attitudes which fooled no one. He was not well accepted, and his motivation for medicine was questionable.

Age, grade, and aptitude characteristics of the applicants in group interview—An analysis with respect to the ages of applicants who were rated in different categories by the assessors showed less than one-half year difference in the average age of the groups. Desirable students ranged in age from 20 to 29, with a median of 21 years. The ages of applicants rated in the lowest two groups ranged from 20 to 27 with a median of 22.

The mean undergraduate grade averages of the applicants in relation to the assessors' rating are shown in Table 3. Among the three categories of acceptability, the mean grade average of the candidates corresponded with the ratings. The premedical grades might be considered a measure of intellectual characteristics which in general were recognized in the group interviews. On the other hand, it is noteworthy that nearly one-half of the students who received a desirable rating from the group assessors had achieved less than B records in undergraduate work. These students either used their knowledge effectively in discussion or impressed the assessors personally regardless of prior achievement.

A comparison of the applicants' performance of the Medical College Admission Test (MCAT) with the assessors' rating of them on the basis of group interview is presented in Chart 2. It was anticipated that the

TABLE 3

PREMEDICAL GRADE AVERAGES OF APPLICANTS IN GROUP INTERVIEWS

Assessors' rating	No. observations	Mean grade-point Av.*	Individual grade average >4.5 (A−) per cent	Individual grade average <4.0 (C+) per cent
Desirable	41	4.11	10	46
Acceptable with confidence	53	4.05	12	45
Acceptable with reservation	25	3.85	8	52
Nonacceptable	10	4.00	0	60

*A = 5.0; B = 4.0; C = 3.0, etc.

group interview situation would give the applicant with high verbal ability an advantage. The desirable applicants however, had a higher mean score not only in verbal ability but in all four subsections of the test. Candidates rated by the assessors in the next two lower categories of acceptability also scored successively lower in all four parts of the test. The part score on the society subtest declined somewhat more in these two groups than did the mean total score. Among the nonacceptable group the verbal ability was relatively much lower and the science aptitude much higher than in the other groups. Even so, this group had the lowest mean score in science as well as total aptitude. In general, the assessors in group interview identified applicants with broad aptitudes, or the lack of them, in a manner similar to the MCAT. The score in the science subsection was the least discriminatory and that in verbal ability showed the greatest over-all difference.

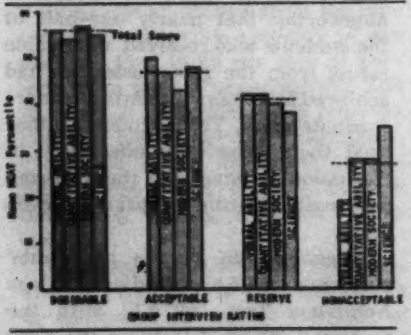

CHART 2. *Results on the Medical College Admission Test among applicants given different ratings in group interview.*

Thirteen to 20 per cent of applicants rated as desirable scored in the lowest quartile in one or more subsections of the MCAT, whereas 20-35 per cent placed in the top quartile in one or more sections. Students judged nonacceptable had MCAT total scores in the lowest quartile in more than one-half of the cases. (Table 4). In contrast, eighteen out of nineteen students in the highest quartile on the MCAT were ranked in the top two categories by the group assessors.

Comparison of the group interview results and medical class standing— The medical college records of 42 freshmen, twenty sophomores, and thirteen junior students who had participated in group interviews prior to admission were examined to determine the degree of agreement between the interview procedure and medical class standing. Also, the other criteria used in the selection of students for admission were evaluated for the same students. The results are shown in Table 5. The assessors' rating of applicants on the basis of group interview had poorer agreement with students' grade performance in the freshman year than did either the

TABLE 4

DISTRIBUTION OF APPLICANTS IN THE HIGHEST AND LOWEST QUARTILES OF THE MEDICAL COLLEGE ADMISSION TEST IN RELATION TO THEIR GROUP INTERVIEW RATING

ASSESSORS' RATING	No. OBSERVATIONS	HIGHEST QUARTILE		LOWEST QUARTILE	
		No.	PERCENT	No.	PERCENT
Desirable	40	9	23	3	8
Acceptable with confidence	51	9	18	10	20
Acceptable with reservation	22	1	5	4	18
Nonacceptable	9	0	0	5	56

premedical grade average or the total score on the MCAT. The results were only slightly better than the judgments from personal interview or college recommendations. In the subsequent years of medical study, two trends are interesting. Agreement of the medical grade performance with the premedical grade average declined, whereas agreement with the MCAT score and the group interview rating both improved. Although the number of observations is too small to establish statistical significance for these trends, the data would be significant statistically if all the students had completed three years with the same results. The trends suggest that the latter two procedures are better measures than premedical grades of ability to integrate knowledge usefully and to make adjustments in interpersonal relationships that occur with progression through the medical curriculum.

The value of each of the selection criteria studied for the prediction of student performance is shown in Chart 3. Among this group of students the MCAT score was found to be the best predictor for high achievement. Eighty-two per cent of the students whose MCAT score was in the upper one-third in the distribution of scores for the entering class had earned a grade position in the upper one-third of the class following the basic science courses in the medical curriculum. The group interview was a poor predictor for this kind of achievement, although it was somewhat better than the personal interview. Group interview was the best predictor of the average student, who was not identified with certainty by any of the evaluating criteria, and also the best means of rating students whose subsequent performance placed them in the bottom one-third of their class. In the latter case the personal interview and premedical grades which are the traditional means of excluding incapable students were not good indicator criteria.

Student response.—Student reaction to the group interview was

TABLE 5

AGREEMENT BY CLASS DIVISION INTO THIRDS BETWEEN CRITERIA FOR THE SELECTION OF APPLICANTS AND MEDICAL CLASS STANDING

CRITERION	FRESHMAN		SOPHOMORE		JUNIOR	
	No.	INDEX	No.	INDEX	No.	INDEX
Premedical grades	42	.49	18	.44	12	.42
MCAT	39	.38	19	.53	13	.61
Group interview	41	.32	20	.45	13	.46
Personal interview	42	.29	20	.30	13	.23
Recommendations	38	.29	20	.30	12	.33

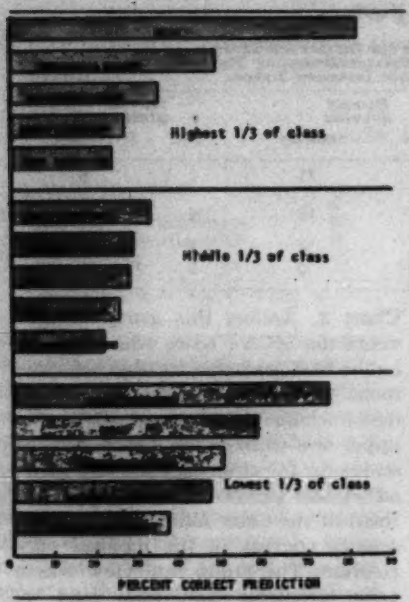

CHART 2. *The value of selection criteria in predicting medical class grade performance.*

sought by a questionnaire which was completed 1 year or more after the final consideration of the application. Replies were obtained from 80 persons, of whom 44 had been accepted and 36 refused admission. The nature of the responses was quite similar in the two groups. Two-thirds of the students stated that they found the group interview considerably more uncomfortable than a personal interview, but only one student described it a very stressful experience. The majority of participants felt that it was an appropriate and valid procedure for evaluating their candidacy for admission to the study of medicine, but there was marked personal variation as to the importance the group interview should be given in relation to other selection criteria. Statements of pleasure regarding the opportunity the interview afforded to meet peers from other undergraduate colleges and enter into discussions with them were almost unanimous.

DISCUSSION

The personal interview has been used in the selection of medical students for a variety of reasons. Principally, it is intended to appraise the physical, emotional, and intellectual preparation of the prospective student. In the absence of gross handicaps, the first of these is given little conscious importance. Also, it is generally agreed that the academic record and objective tests permit evaluation of an applicant's intellectual qualifications. The validity of personality evaluation varies greatly with the skill and experience of the interviewer. Even when it is performed by capable persons it has been difficult to establish the importance of many personality variables in relation to student or physician performance. Consequently, as a predictive measure of subsequent achievements, the personal interview has not been a good indicator.[1]

In the present experiment the interview was used as a means of observing the applicants' ability to utilize knowledge in a compelling situation. This required appropriate social adjustments for the exchange of ideas and potential acquisition of further knowledge in an environment that simulated some aspects of educational instruction. The applicants' participation and behavior permitted the assessors to make some evaluation of his personality and other factors that might not have been apparent from objective data. The experiences of others suggested that this type of group interview might be useful as a criterion for selection.[2,3]

Individual intellectual and personal characteristics were rated variably for individuals, but, with the excep-

tion of personal appearance, they were interrelated and indicative of the general assessment of the applicant. Upon the basis of observations in the group interview, there were five general levels of discernment of personal characteristics. Some important features of personality were poorly discerned in group behavior, but social conduct in some degree of competition with peers, the formulation and expression of ideas from previous experience and education, and some features of personal reaction to critical discussion were distinctive.

There was some general relationship between the results of the group interview and the mean academic achievement and MCAT scores of the candidate, (Tables 3, 4, and Chart 2), especially among the group who were admitted. A detailed statistical analysis of the predictive value of group interviews is unavoidably biased by the exclusion of many candidates who were considered desirable by assessors who were uninformed about substandard academic records or tests. Comparisons are restricted to applicants with acceptable achievement in each of the other selection criteria. Among such a group the data suggest that a desirable rating by the assessor did not prove to be an accurate estimate for grade achievement in the early years of medical study but its validity increased with the passage of time. The pursuits of this group in the postgraduate years when individual personality assumes relatively more importance will be of interest.

The predictive validity of an unfavorable rating in the group interview among students who were otherwise qualified for admission was quite striking. The number of cases is small, but the observation is corroborated by the high proportion of students who were rated poorly and had poor undergraduate records or MCAT scores and thus were not even admitted to the College of Medicine.

Further observations are necessary. At the present time it appears that use of the group interview might complement the other selection criteria by permitting a personality evaluation that involves the students' capacity for the social use of knowledge and provides broader differentiation among acceptable candidates and also by predicting inferior grade performance among applicants some of whom present satisfactory admissions records.

Summary and Conclusions

One hundred twenty-nine applicants for admission to the University of Illinois College of Medicine during 3 different years were interviewed in groups of six by a technique of group discussions. Two assessors classified them under four categories of acceptability on the basis of attributes discerned from the individual's participation. The group interview tested the candidate's ability to use knowledge in a social situation and provided greater discrimination among qualified applicants. Conduct, analysis, grasp of the topic, and objectivity were the characteristics that best distinguished the general acceptability of applicants under these conditions of situational behavior. Additional characteristics of desirable and less desirable applicants as perceived by the assessors were examined. Assessors' ratings showed some general relationship to the applicants premedical achievement, the mean scores on the Medical College Admission Test, and to personal interviews.

The agreement of the group interview and other criteria used in the selection of medical students with medical grade achievement was ex-

amined. The evaluation of an applicant as desirable was not predictive of medical class rank, although its validity tended to improve with subsequent years of observation. A poor rating under these conditions was the best means of predicting the performance of students in the lowest one-third of the class. In all these respects the group interview was superior to an individual personal interview.

Acknowledgments

The interest of Dr. Granville A. Bennett, Dean, and the members of the Admissions Committee of the College of Medicine and the help of Mr. George Moon, Examiner and Recorder, and his staff was essential to the success of the study. The participation of the following faculty members is acknowledged: Drs. Helen Beiser, Edward F. Lis, Paul E. Nielsen, and George E. Wakerlin.

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Medical Education for Modern Medicine*

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THE RAPID GROWTH of medical information in the past several decades has been attended by expansion of premedical and medical scientific curricula and prolongation of the years of postgraduate education in a continuing endeavor to provide qualified physicians. At the same time, partly as a result of these same medical advances and partly as a result of alterations in our socioeconomic structure, major changes have occurred in the pattern of medical practice. Except for the sharp increase in science course requirements and the years added to hospital residency programs, these changes have been accompanied by few alterations in the basic premedical and medical curriculum. Several factors have influenced our consideration of alternative forms of premedical and graduate education.

The de-emphasis of general education.—The pressure upon medical students to acquire skills in the scientific disciplines has of necessity limited the education of premedical students in the humanities, languages, and social sciences. Certainly, inclusion of these and other academic areas in his educational experience is vital if the physician is to be an effective citizen in the changing world in which we live. Familiarity with the processes of reasoning and logic are particularly important to the modern physician, because the dynamic changes that are taking place in medicine today demand that the modern physician constantly make decisions involving the validity of peoples, drugs, and doctors. This does not mean that the scientific background of the future practitioner should be compromised. Indeed, it is the physician's science which permits him to arrive at intelligent judgements about patients based on observations which can rarely be complete. It does mean, however, that in the sciences the emphasis should be upon understanding the scientific principles involved, and knowledge of the minutiae of science is important largely because certain specific details are necessary for intellectual recognition of the processes involved.

The length of the curriculum.—At the present time, at the conclusion of 4 years of college, 4 years of medical school, and 1-year internship, none of the medical graduates is sufficiently qualified to assume the primary responsibility for the varied problems encountered in the practice of medicine. The graduates recognize this, and unless they are diverted by economic or military necessity, many of them enter specialized hos-

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pital residency programs, adding 3-5 more years to their medical curriculum. As a result of this, and the requirement of 2 years military service, many young men are 30-32 years old before beginning the practice of medicine. They have spent, literally, a quarter of a century in preparation for the practice of medicine.

The inflexibility of the curriculum.—Unfortunate results of the long period of formal preparation are that during these years the student's youthful energy and imagination may be dissipated, and there is little opportunity for the brilliant, imaginative student to give early vent to his scientific curiosity. In physics, chemistry, and mathematics, the competent student has completed his formal graduate education by the age of 24 or 25. While young, he has an opportunity to think imaginatively, test hypotheses, and contribute to progress in his field. In medicine, on the other hand, we continue the formal education of the unusually able student (the more able, the more years) until he reaches the early thirties and then, after much of his useful energy and enthusiasm are waning, we try to have him develop into a teacher, scientist, or clinical investigator. Indeed, interest in any specialized field of medical practice or research is frequently discouraged until after completion of the 9-year college and medical school curriculum.

The changing technics of medicine.—While patients continue to seek medical care for the treatment of indigestion, pain, fever, accidents, and anxieties, the technics which the modern physician must employ to handle these problems are quite different from those used by the physician of even 2 generations ago. Examples of this are the development of specific therapeutic agents for many of the infections that formerly posed a major challenge, the diagnostic and therapeutic technics that require the attention of specialists and even super-specialists for their effective application, and the acceptance of the technics of the psychologist and the psychiatrist in the accurate diagnosis and effective management of all forms of illness. Indeed, change itself is the certain constant of modern medicine, and physicians necessarily must be able to appraise these changes and accept or adapt them to their professional activity.

The changes in medical practice.—Among others, these changes include greatly increased emphasis of the individual physician's role in preventive medicine and in the maintenance of health, in addition to his role in the care of illness, the aging population, and the increase in the problems that are more frequent in an older population, the development of group clinics and group practice, and the general acceptance of health insurance and prepaid medical care programs by organized industrial and labor groups.

Another important change in medical practice has been the shift away from the necessary hospitalization of patients for x-ray and other diagnostic examinations and the use of the physician's office for the diagnosis and treatment of most disorders except medical catastrophes and those requiring surgery. With this increased emphasis on the outpatient practice of medicine, the additional hospital residency years that have been added to the medical curriculum may not be the optimal way to educate physicians to practice modern medicine. It is certainly doubtful to insist that the best education for a physician who will use 90 per cent of his skill in the *office* practice of

medicine, is to spend 3-5 years after his medical graduation in supervised *hospital* practice.

The approach to the problem.—Fundamental to the program at the University of Pittsburgh is the belief that a modern medical education program can be designed that will permit the early selection of qualified applicants and individualization of their education to enable them to meet more effectively their present and future responsibilities as physicians, teachers, investigators, and citizens. It is our judgment that this can be achieved without increasing the length of the already overlong period of medical education.

It is planned that, within the present organization of the College and School of Medicine of the University of Pittsburgh, there be trial and testing of alternative forms of an integrated college and medical school program. These will encompass the present allotment of nine years, although the traditional division of 4 years of college, 4 years of medical school, and a 1-year internship may be modified for individual students participating in this program. Tentatively, it has been considered that the student planning to enter clinical medicine may spend 6 years in the basic college curriculum and in preparation for his clinical vocational education and 3 years devoted to the acquisition of technical skills and clinical experience in hospitals and outpatient departments.

The details of the content of the basic college and medical preparation program and the 3 years of clinical education will depend, of course, upon the needs of the individual student and the ability of the faculties to provide these. Indeed, a thoughtful period of consultation and gestation with the faculty members concerned in this program is a vital prerequisite for the enthusiastic support of those who will ultimately bear major responsibility for the effectiveness of such a change. However, both the 6-year basic preparation and the 3-year clinical program are feasible within the present departmental framework of the University. To implement this plan effectively, the changes necessary would be largely those of course scheduling without administrative reorganization.

The six-year college-basic science preparation program.—In general, the progression in this part of the program would be from a general college education similar, if not identical, with the "core curriculum" in the 1st year to more and more specialized material related to medicine in the later years of the program. A suggested sequence of courses for students planning to enter clinical medicine is provided in Table 1. In this program every effort would be made to avoid unnecessary duplication of courses and course content, and the timing of sequential courses would be designed to avoid educationally inefficient hiati in the presentation of prerequisite and advanced material.

It will be noted that, in this suggested curriculum study of the humanities, social sciences and languages are extended well into the usual medical school years. While at first thought it may seem impossible to extend these nonscience courses into an already overcrowded medical school curriculum, in the program here suggested, the entire final 3 years will be designed to provide actual experience in medical problems, and, therefore, considerably less time need be allotted to clinical subjects during the period of preparation for the vocational clinical period.

A program such as this requires

TABLE 1

NINE-YEAR MEDICAL CURRICULUM

Suggested Allocation of Courses
Credits = 32 each of first 6 years

		Credits
Year One	Communication	6
	Humanities	6
	Social Sciences	4
	Natural Sciences	4
	Inorganic Chemistry*	6
	Mathematics	6
Year Two	Communication	6
	Modern Language	6
	Humanities	4
	Social Sciences	4
	Organic Chemistry*	8
	Biological Science*	4
Year Three	Social Sciences or Humanities	6
	Modern Language	4
	Medical Physics*	6
	Biochemistry*	8
	Psychology—introduction*	4
	Mathematics	6
Year Four	Social Sciences or Humanities—Advanced	4
	Modern Language	4
	Basic Physiology*	6
	Medical Psychology*	4
	Bacteriology, virology, immunology*	6
	Anatomy and Neuroanatomy	8
Year Five	Introductory Medicine*	6
	Clinical Physiology*	4
	Pathology*	8
	Pharmacology*	8
	Medical Psychology—Advanced*	4
	Language, Humanities, Social Sciences	4
Year Six	Physical Diagnosis*	6
	Critical Observation*	2
	Medicine and Specialties*	8
	Surgery and Specialties*	6
	Obstetrics & Gynecology*	2
	Psychiatry*	4
	Pediatrics*	2
	Humanities, Social Sciences*	4
		per cent
Year Seven	Medicine and Specialties—Hospital	40
	Surgery and Specialties	20
	Obstetrics-Gynecology	10
	Pediatrics	10
	Psychiatry	20
Year Eight	Medicine and Specialties—Outpatient and Hospital	40
	Surgery and Specialties—Outpatient and Hospital	20
	Obstetrics and Gynecology	10
	Pediatrics—Outpatient and Hospital	10
	Psychiatry	20
Year Nine	Medicine and Specialties—Outpatient, Home and Hosp.	40
	Pediatrics—Outpatient, Hospital and Home	10
	Surgery and Specialties—Outpatient and Hospital	10
	Obstetrics and Gynecology—Outpatient and Hospital	10
	Psychiatry—Outpatient and Hospital	20
	Elective	10

Notes:

Communication—written and spoken English.
Humanities—English literature, philosophy, music, fine arts.
Social Sciences—history, political science, sociology, economics.
Natural Sciences—physics, chemistry, geology, astronomy.

In first 6 years, items marked with an asterisk (*) are required courses for students. Although adjustments are possible in the sequence of such courses, all required courses in first 4 years must be completed before entering the 5th year of this program.

The medical specialties include among the customary ones,— radiology, neurology, and dermatology.

The surgical specialties include, in addition to the usual branches, ophthalmology and ear, nose, and throat.

some student selection of a profession after the 1st or 2d year and a fairly definite selection after the 3d year. However, within this program, it would be possible for students of ability, considering medicine as a career, to enter this program, and if later it should prove advisable for them to alter their objective, their general educational experience should permit ready diversion to another profession. By identifying the potential scientific investigator at an earlier age, he can be provided with educational opportunities differing from the program of those planning to enter the practice of medicine and permitting him the privilege of independent work before he has reached the middle years. An important advantage of this more flexible approach may be the willingness of unusually able students who are uncertain of their interest in medicine and the medical sciences to enter a program that permits adjustment of their ultimate objectives without an extravagant expenditure of time. For students about whom uncertainties of selection arose at this early date, summer fellowships, etc., could provide a more intimate student-faculty relationship and permit sound decisions in this area.

The three-year hospital and outpatient program.—Inherent in the fact that the recent graduate is inadequately equipped to immediately begin to practice medicine, is the fact that throughout his medical experience he has participated in fragmentary medical care. In almost all large medical center programs the care of the patient is the shared responsibility of several physicians, from the intern to the chief of service, whereas, in the private practice of medicine, full responsibility often falls squarely on a single attending physician. The modern graduate, unaccustomed to this kind of individual responsibility and perhaps inexperienced in the areas represented by his patients' problems, feels insecure and seeks a further period of graduate, in-hospital experience to compensate this insecurity. It is the objective of the curriculum here proposed to provide the students participating in this educational experiment with the kind of experience that avoids fragmentary medical care. This may be achieved in part by providing him an opportunity to spend a major portion of this 3-year program in the outpatient practice of medicine. This does not mean that the in-hospital intern experience now required for licensing would be abrogated, but only that this time, as far as possible, would be made to coincide with the student's other responsibilities so that he literally could be the responsible "family doctor" caring for patients for an extended period of time.

This would require extensive student indoctrination and experience in outpatient departments, not only in medicine but also in preventive and occupational medicine and, especially, pediatrics and psychiatry. It may also involve the actual home care of clinic patients when this is the most satisfactory way of caring for a clinical problem. Some experience in minor surgery and office gynecology may also be included. The extent of this experience would depend upon the considered judgment of the responsible faculty. However, no attempt would be made beyond the internship requirements to provide experience in major surgical and obstetrical procedures, and the graduates of this program would be acutely aware that they were not competent for "general practice," if that term means the practice of general medicine and general surgery.

During the period in which a student is assigned to the specialties such as pediatrics or psychiatry, it may be stressed that an attempt will not be made to have him become some fraction of a specialist in these fields. The specialist residency program has considerably different objectives than those of the student in this program. The full-time specialist has an all-encompassing interest in his specialty, but the student engaged in the proposed program is most intensely interested in those phases of psychiatry or pediatrics related to the outpatient practice of medicine. It will not be possible in his undergraduate years for him to become adept in handling specialized problems such as pediatric metabolic acidosis or severe schizophrenia, but he should be entirely competent to handle less severe problems in these and other areas of medical practice.

The appropriate division of experience during the 3 years in this curriculum is a complicated decision that will require consideration not only of the technics of pedagogy involved and the relationship of students in this program to other students, interns, and residents, but also of the changing patterns of medical practice. For example, should only the legal minimum of obstetrical experience be provided, or should an attempt be made to provide real competence in the handling of normal obstetrics? Will the practitioner of the future continue to do obstetrics or will this area fall more and more into the province of the obstetrical specialist? Decisions on this and similar matters will require some careful estimates of future changes in medical practice. Tentative suggestions on the time to be allotted in the clinical curriculum are shown in Table 1.

The earliest possible identification of potential candidates and of those unfit for graduate education in the medical sciences will be attempted. A major consideration in the selection procedure developed will be the need to encourage able students to enter medicine and the medical sciences. To make this possible, scholarship support for students of unusual ability will be made available wherever possible.

Summary

An experimental curriculum is under development that will permit a small number of students greater flexibility in their college and medical educational experience. It is anticipated that the modifications suggested would permit students intent upon a scientific career in a medical field to pursue a course more appropriately designed to this end and to permit students interested in becoming family physicians or clinical specialists to participate in an educational experience aimed toward these objectives. In this program it is planned to strengthen both the scientific and humanistic disciplines and to permit potential scientists and clinical specialists to begin the specialized phases of their education at a somewhat earlier age. Similarly, the curriculum of students electing the clinical practice of medicine will provide a more effective educational experience than the current, all-purpose, 9-year course.

Initially, a small number of students selected on the basis of their early collegiate experience will be permitted in their collegiate years to take some of the premedical science courses along with the regular medical students. The subsequent curriculum of these students will be modified depending upon their interests and abilities to provide both a sound general education and a more effective basis for their ultimate career

objective. This would be accomplished for this experimental group of students without any alteration in the departmental structure of the University or the courses presently taught by the several departments. It would be effected by the judicious use of the summer holiday period and by rerouting the student through present courses to provide the most effective education for his individual objective.

Abstracts on Programs of Medical Education for Annual Meeting of the Association

The annual meeting of the Association of American Medical Colleges will be held at the New Ocean House, Swampscott, Massachusetts on October 13-15, 1958.

The Program Committee will welcome abstracts describing experiments and programs in medical education and in health services related to medical education. This may include premedical, medical, graduate and postgraduate education. It may include methods of education and of research in education. Since educational projects are inherently long term in nature, abstracts describing programs either projected or in progress will be considered.

The following regulations concerning abstracts and presentation of papers have been approved by the Program Committee and the Editorial Board of *The Journal of Medical Education:*

a) Three copies of the abstract are to be sent to the Chairman of the Program Committee: Dean Lowell T. Coggeshall, University of Chicago, Chicago 37, Ill.

b) The abstracts are required by July 15, 1958.

c) Abstracts should not be longer than 250 words: no tables or charts are to be included. The title of the paper should be followed by the names of the authors; their faculty rank, their university, institute, or hospital and its location. Abstracts must be typewritten, double spaced on $8\frac{1}{2}$ by 11 inch paper.

d) The time allowed for presentation of any paper will be ten minutes. Projectors will be provided for lantern slides $3\frac{1}{4}$ x 4 inches or 2 x 2 inches.

e) Acceptable abstracts will be published in *The Journal of Medical Education* at the time of meeting.

The formal paper will be considered for publication by the Editorial Board of *The Journal of Medical Education.*

Educational Exhibits

This year there will be space for educational exhibits at the annual meeting of the Association of American Medical Colleges. It is hoped that our faculties will take advantage of this opportunity to show what they are doing.

Exhibits of this type will make a real contribution to the meeting and we are particularly interested in exhibits that show experiments in medical education.

Those individuals desiring to present such exhibits should write to Dr. Ward Darley, Executive Director, Association of American Medical Colleges, 2530 Ridge Avenue, Evanston, Ill.

Medical Education Forum

Editorials

A BOLD NEW PROGRAM

THE NEW U.S.-U.S.S.R. technical, cultural and educational agreement should be a source of gratification to medical educators. Specifically, the text of the agreement contains several statements relating to medical education:—

1. There will be exchange of radio and television broadcasts on subjects including science, education and public health.

2. There will be exchange of eight delegations of five to six specialists for periods of two to six weeks to become familiar with research and achievement in "new antibiotics, microbiology, physiology and pharmacology of the nervous system, radiobiology, biochemistry, metabolic diseases, endocrinology, community and industrial hygiene."

3. Exchange of delegations in the field of the manufacture of medical apparatus and instruments will take place.

4. The Health Ministry of the U.S.S.R. will send 3-4 medical scientists to the U.S.A. for a period of 2 to 3 weeks, and lecture and exchange information. The U.S.S.R. will receive a similar group of U. S. medical scientists.

5. There will be an exchange of medical literature.

All exchanges will be on the basis of strict reciprocity. Further, the scientists participating in the program will be required to furnish their own financial support.

The development of this program would seem to be an important new look in foreign relations. Let us hope that the words will be promptly translated into effective action! *J.Z.B.*

Book Reviews

K. E. Penrod
Book Review Editor

Problems of Vision in Flight at High Altitude

By Thomas C. D. Whiteside. Published by Butterworth Scientific Publications, 1957 for Interscience Publishers, Inc. New York. Pp. 162 with index. Price $5.00.

This small volume records the results of a series of ingenious and well-executed experiments and is published under the sponsorship of the Aeromedical Panel of the Advisory Group for Aeronautical Research and Development of the North Atlantic Treaty Organization. Flight at high altitude (approximately 40,000 feet above sea level) presents interesting and often annoying problems to the flier. He is exposed to glare from the sky below and now does not have the protective function of the eyebrow. There is greater contrast between light and shade. A subjective haze responsible for the difficulty in seeing instruments is shown not to be due to lens fluorescence or intraocular fluorescence or scatter but to a positive after-image of the bright cloud floor rendered persistent by the slight anoxia present. In the presence of an empty visual field (cloudless sky), subjects cannot relax accommodation completely. This new observation is reminiscent of what has been known as "night myopia" but is now shown to be present in daytime flying. Many other factors are discussed and detailed descriptions are given of the methods and apparatus used. Helpful summaries are presented at the end of chapters. The volume will particularly interest workers in the field of vision and in aviation and is also recommended to the many individuals who do a considerable amount of flying and have become interested in and curious about some of the phenomena they have experienced or are likely to meet.—H. S. Mayerson, *Tulane.*

Tranquilizing Drugs

By Harold E. Himwich, M.D. Published by American Association for the Advancement of Science, Washington, D. C. 1957. Pp. 205 with illus.

This volume consists of a series of papers presented at a symposium under the auspices of the American Association for the Advancement of Science, in cooperation with the American Psychiatric Association and the American Physiological Society, December 27-28, 1955. It includes a preface by Dr. Himwich and an introductory note by Chauncey D. Leake, M.D. The papers are divided into three groups: 1) Electrophysiological analysis of the action of some of these drugs; 2) Metabolic analysis of drug action; and 3) Reports on therapeutic experiences in the use of a number of these drugs.

The reports of the electrophysiological investigations include analyses of the effects of these drugs on the functioning of the synapse, on seizure latency, on the electrical activity of the thalamus and other subcortical areas, and on the functioning of the extrapyramidal system. The metabolic analyses deal with the effects of some of these drugs on brain adenosine-triphosphate and the effects of adrenolution. Attention was given not only to the effects of these drugs on the above mentioned physiological and metabolic processes, but also a comparison of these with disturbances of these functions as they are observed in some psychotic states and in conditions produced experimentally by the so-called hallucinogenic agents.

In the papers dealing with the therapeutic results of these drugs, the authors present their clinical experiences with the administration of these agents including, in addition to the actual effects on the course of the illness, the methods of administration, dosages, complications that may arise during the course of treatment, contraindications and procedures found useful in counteracting the complications.

In the last two papers, Drs. Ayd and Himwich present a critical survey of the symposium as a whole and some conclusions in regard to the present status of these methods of treatment.

In assessing the value of this publication, we must take into considera-

tion the fact that in spite of the very short time that these drugs have been in use, they have become very popular not only with those who are specializing in the field of mental disease but also the general medical profession. A great deal has been written and said about this subject, many conflicting reports have been presented in regard to every conceivable phase of this subject, and many questions have arisen concerning the manner in which the drugs act. This volume, therefore, which in part attempts to ascertain objectively the actual facts, is a very worthwhile contribution.

In any presentation of this type there will, of course, be a wide variation in the validity of the results and the scientific quality of the work done. In this volume, perhaps the most reliable and scientifically useful data are presented in the first two chapters. Some of the clinical papers, although valuable from a practical point of view, leave much to be desired in regard to scientific reliability, mainly because of the lack of suitable use of controls and adequate observation particularly in regard to follow-up. The introductory note and the two papers on critical evaluation are especially helpful in pulling together the present day knowledge of the clinical effects and physiological action of these drugs, and will help materially in the attempt to reach conclusions in regard to the ultimate usefulness of these drugs in a field in which adequate treatment based on scientific facts is so urgently needed.—William Malamud, M.D., *Boston, Univ.*

Spontaneous and Habitual Abortion

By Carl T. Javert, M.D. Published by McGraw-Hill Book Co., New York 1957. Price $11.00, pp. 450 with index.

The introduction outlines the methodology of pathological study of the spontaneous abortions that were seen at Cornell Medical Center from 1947 to 1954. During this interval there were over 30,000 pregnancies and 8.3 percent of these terminated in spontaneous abortion. Pathological material was available for study in 2,000 consecutive instances. The physiology of placentation is presented in detail.

Pathological discussion is divided up into the following sections: the uterus and ovary; the uteroplacental organ; the ovofetus; the umbilical cord, membranes and placenta; and abortions, 104 habitual (3 or more sequential), 471 therapeutic, and the remainder, spontaneous. Hemorrhagic decidua was reported in 61.4 percent of 1,769 cases; pathological fetuses in 35 percent of the 829 ovofetuses studied, and umbilical cord anomalies in 54 percent of the 553 complete cords that were available for study.

The section on clinical obstetrics covers many correlations with menstrual history, parity, serology, blood chemistry, coitus, psychosomatic manifestations, etc. The author chides others for their empiricism but himself gives dessicated thyroid on the basis of lowered basal metabolic rate alone. He finds clinical manifestation of scurvy in one third of the patients. His regime for the prevention of habitual abortion consists of preconceptional interview with patient and husband, adequate diet with supplements of Vitamin C, P and K, thyroid substance as previously indicated, psychosomatic therapy prn and 9 various Don'ts (including no coitus, no smoking, no vitamin E, no sex hormones, no tub baths).

Throughout the book there are many pen and ink drawings designated to depict humorously the various plights of the 'aborter.' The reviewer will leave it to the others to decide for themselves whether such has a place in a scientific treatise.—C. D. Davis, M.D., *Yale Univ.*

ABSTRACTS

Physical Methods in Physiology

W. T. Catton. Philosophical Library, New York. 1st Edition, 1957. Pp. 368.

This book is an attempt to present in an abbreviated form the wide variety of physical experimental techniques and theoretical treatments which have been applied to physiological investigations. Its terms of reference thus cover a part of the rather ill-defined field of biophysics. Such works on biophysics as are available relate generally to limited fields of specialized investigations, including the properties of protoplasm,

the sub-microscopical structure of cells and tissues, and osmotic and permeability phenomena in living systems. The author has sought to cover a different and wider field, to include some mention of the main physical methods used in investigations in the major fields of physiology and to deal also with physical treatment of physiological phenomena. Although the emphasis is on methods, an attempt has been made to include such fundamental physiology as will prevent the book becoming a mere catalogue of experimental techniques, and further to this end the chapters deal with recognized physiological systems. In the past, works as "Medical Physics" and "Methods in Medical Research" have included much material that is of essentially medical interest in addition to those useful strictly in physiology. It was felt, therefore, that a short book describing physical methods applied largely to physiological problems would serve a useful purpose. It was early decided that topics on which much specialized literature was available such as electrocardiography, electroencephalography, special sense physiology and physics of vision and hearing would be excluded, else the book would become too large and the undertaking too ambitious for a single author.

Fundamentals of Human Physiology

W. B. Youmans. The Year Book Publishers, Inc., Chicago, 1957. Pp. 565 with index. $8.50.

This book is obviously written to present the fundamental principles of physiology with clarity and brevity and with little reference to clinical subject matter or to topics which are admittedly controversial. The author assumes the student already possesses an adequate background of knowledge in anatomy and biochemistry. The order of presentation of text material is excellent. The first chapter deals with general physiologic principals of homeostasis, movement of materials through cells and fluids, regulation of hydrogen ion concentrations, and principles of enzymatic activity. The main text material is then divided into three parts. The first part discusses functional activity of nerves, muscles, peripheral and central nervous system, and the special senses. The second part is concerned with the function of the circulatory and respiratory systems, and the third part with nutrition, digestion, metabolism, endocrinology and excretion. The discussions flow freely, progressing from framework generalizations to more complex principles in a manner which leaves the reader with adequate background knowledge to proceed to the next section. The illustrations of the text are plentiful and well planned. Many simple line diagrams and drawings are used. Distractions, such as superfluous artwork, unnecessary labelling, and faded photoreproductions are not evident. At the end of each section is included a very useful bibliography, citing not only the standard classics, but recent books and periodicals as well. Many of the recent references are dated only a few months prior to publication of this book.

The book appears to meet the requirements for the introductory course in human physiology for students of nursing, physical therapy, physical education and liberal arts. Who is to say it might be too brief for students of medicine and dentistry, especially since there is a trend away from the use of encyclopedic textbooks for introductory coursework, and since there are now available many excellent monographs and short reference books dealing with specific subject areas within the discipline of human physiology, which may be used as supplementary reading material.

Modern Pharmacology and Therapeutics

Ruth D. Musser and Joseph G. Bird. The MacMillan Company, New York. 1st Edition, 1958. Pp. 767.

This book is written primarily for nursing students but in such a way as to be useful to students in other related fields. It has been written with the objective that it should be practical, adequate and modern. An attempt has been made to include all important drugs recently made available. An effort has been made to provide a minimal clinical background for a proper understanding and interpretation of pharmacologic preparations. For instance the clinical and pathological picture of heart failure is explained in the simplest terms and in such detail as is practical for a thorough understanding of the action of digitalis glycosides. Basic phar-

macology is the chief subject matter and emphasis has been laid on the stepping stones by which the nurse learns to do her part in administering medications and in evaluating the effects on the patient, whether she is under the physician's guidance or administering her art largely on her own resources. The text is so designed as to allow latitude in instructor's lecture outlines and the chapters are relatively independent of each other. They have been grouped into individual functional units as an aid to correlating the material in an organized manner.

The Practice of Infectious Diseases

Louis Weinstein. Landsberger Medical Books, Inc., New York. Distributed by McGraw-Hill Book Co., Inc. 1st Edition, 1958. Pp. 494.

This book is written for the practitioner of medicine, many of whose patients present themselves to him with problems of an infectious nature. Despite the ability of potent antimicrobial agents, it is a striking fact that the incidence of many of the common infections has not been significantly reduced. In addition, "new' diseases, mostly due to viruses, are being reported with considerable frequency. Superimposed on the problems of the frequency of "old" diseases and the appearance of "new" ones are the pressing necessity for specific diagnosis, the proper selection and application of chemotherapy, and the fact that the administration of many antibiotic agents is not without danger. For the reason that when a physician sees a patient with an infectious disease, his attention is usually first directed to the particular organ system involved and not the specific etiological agent, this book has been arranged on the basis of organ systems in which the infectious diseases occur rather than on the basis of the microorganisms which cause them. Thus it is hoped by the author to lighten the burden of differential diagnosis and to facilitate the intelligent selection of treatment. No attempt has been made to include all of the infectious diseases, the emphasis being on those that are observed most frequently in the United States and Europe. "Tropical" diseases, even such common ones as malaria, cholera, and most of the worm infestations have not been described even though they occur at times in the Temperate zone. No effort has been made to document the treatments in this book by bibliographical emphasis. They are, nevertheless, the distillate of the observations of a very large number of clinicians and investigators associated with the author.

Reason and Chance in Scientific Discovery

By R. Taton. Translated by A. J. Pomerans. Philosophical Library, New York. 1st Edition, 1957. Pp. 163. $10.00.

All scientific progress is the result of a chain of discoveries of differing degrees of importance and significance. Each of these discoveries, while based more or less directly on previous work, leads in turn to new advances. This forward march, however, is far from being regular. Its general sense is often obscured during periods of relative stagnation or even of apparent regression. At other times scientific progress seems to be accelerated, producing vast changes in a whole realm of science, or creating fruitful connections between different sectors of our knowledge. In effect, the science of an epoch is the result of the successive contributions of many generations of research workers, be they geniuses or only simple and unknown servants of science. The study of the origins, the conditions, the circumstances, and the character of scientific discovery involves widely varying epistemological and psychological aspects, and many studies, often reaching different conclusions, have been devoted to it. In order to avoid the dangerous territory of interpretations that are too systematic, the author has chosen to do no more than give a description of the different realms of scientific discovery, its principal factors and its essential aspects, with examples drawn from the various fields. In order not to lower their illustrative value, he has tried to relate his examples in the most objective way, avoiding all convenient schematizations which give nothing but a distorted image of what is always a very complex reality. Because of this, his conclusions may often appear less categorical than those of other authors. The major sections dealt with are "The Different Realms of Discovery, Factors in Discovery, and Various Aspects of Discoveries."

Psychopathic Personalities

By Harold Palmer. Philosophical Library, Inc., New York. 1st Edition, 1957. Pp. 175. $4.75.

This book is comprised of a series of clinical essays on psychopathic personalities, schizophrenia, the depressive states, the obsessions, hysteria, the epilepsies, the tension syndromes, the paranoid states and mania. The main purpose of the author has been to achieve a presentation of psychiatry acceptable to workers in other disciplines, including those concerned with the management of human beings. The author cautions that within the hysteria and psychopathetic personality groups rest the origin of the greatest threat to the free institutions of England and the United States. How to recognize and control these psychopaths who so suddenly erupt as magogue and how to understand the individual human aspects of tension are main problems of the free world. The portrayal of the clinical aspects of this problem is the purpose of these essays.

The Chronically Ill

By Joseph Fox. Philosophical Library, Inc., New York. 1st Edition, 1957. Pp. 225. $3.95.

This book attempts to survey some of the facets of what has become one of the most significant demographic and public health problems confronting this nation. This subject comprises many specialized sub-studies, some in medical specialization, some in the sociological and welfare fields, and some psychological and philosophical, as well. This book is an attempt to interrelate the subtopics so as to point out the scope and some of the implications of the prevalence of long term disabilities and chronic sickness. The information presented here should be of particular interest to the busy physician, the social worker, the hospital administrator and to others who are concerned with the very serious problems of chronic illness. It is not a manual on medical treatment. No attempt has been made to be encyclopedic with respect to specific diseases or even in providing all the hints and suggestions that would be pertinent in many practical situations. In reality the book is an introduction to the subject and attempts to summarize contemporary thinking and practice with respect to long term or chronic disabilities and illnesses. The writer has drawn upon his own experience as an administrator of a home for aged and of a small chronic disease hospital for many years and upon the assistance and inspiration of his colleagues and associates in this field of work. A bibliography of pertinent general works is appended. The basic approach is first to deal with chronic disorders as they strike the individual, and only after they have been discussed in that setting are the problems of organization, institutionalization, finance and ethics discussed.

Psychological Disorder and Crime

By W. Lindesay Neustatter. Philosophical Library, Inc., New York. 1st Edition, 1957. Pp. 242. $6.00.

It is not easy for those charged with the responsibility for the conduct of a court of law to avail themselves of an appropriate book of instruction in human behavior. Something between the pamphlet and the great textbook of psychiatry is badly needed. That is the fundamental purpose of this book. It is an attempt to explain to the non-medical, and especially the legal, world much about the disorders of the mind and the available treatments of these conditions. The author has confined himself essentially to the description of the common psychological disorders, giving illustrative case histories to show types of crime with which they are associated. In a sense it is an effort to explain the subject of psychiatry factually to the layman. An effort has been made to be sufficiently technical to allow the book to be of use to those members of the various professions whose work brings them into contact with the law breaker as well as being clear to the lay reader. The author stresses the fact that this is an introductory volume and makes no claim to being anything more.

Trends In Gerontology

By Nathan W. Shock. Stanford University Press, California. 2nd Edition, 1957. Pp. 185. $4.50.

In view of the rapid strides made in the last five years in this subject, it has been necessary to rewrite, rather than revise, the first edition of this book. It is written for the informed layman

rather than the specialist. It attempts to bring together the many facets of gerontology and to provide key references with illustrative data. A survey is made of the current status of activities in the field of ageing and an effort has been made to access current trends in terms of major developments since 1950. Bibliographic citations have been kept to a minimum, since all references to the literature may be found in "A Classified Bibliography of Gerontology and Geriatrics (1951 supplement, 1957)".

Cardio-Charting: Universal Method of Recording Heart Auscultation

By Arthur Briskier. The MacMillan Company, New York. 1st Edition, 1957. Pp. 51. $6.00.

In contrast to the other parts of a physical examination which are recorded satisfactorily in a standardized way, such as blood pressure, temperature, pulse, respiration, etc., cardiac auscultation lacks of a means to describe to another person what one hears. Many methods have been introduced to transfer sounds into instrumental graphs to facilitate diagnoses yet these can show only the length of time during which a sound takes place, as well as a few other characteristics such as amplitude and frequency; the sound itself, as such, remains invisible. The author of this book has presented a new, simple clear and concrete method, based on self-explanatory colored symbols to explain to others the sounds heard during auscultation. It is his contention that, once having been heard, a sound or murmur can be recalled at a later date by the association of a sound with one particular color (blue), and a murmur with another particular color (red). Furthermore, not only the sounds and murmurs are thus recalled, but also their characteristics can be visualized equally well by a given shape which will be the closest mental picture of that particular acoustic phenomenon under consideration. Thus the auditory findings can be charted by the clinician and kept as a permanent visual short hand record. Such a system can be helpful not only for the practitioner but for teaching purposes as well. The necessity of charting his own clinical findings in a standardized way would compel the physician to listen more carefully during auscultation of the heart. The use of a single unified method will also result in a more objective presentation of various individual auditory perceptions and their interpretations. Subjective variations can also be minimized because of the symbols representing individual findings. The system has another distinct advantage in being a universal language that can be understood by anyone in any part of the world. It is the hope of the author that cardio-charting will become not only a standardized method of notation which will help to restore auscultation to its primary place of importance, but also the system will help to promote the establishment of a world-wide common language through which all physicians could express objectively their own individual perceptions and understand each other's charting of the cardiac auscultatory findings.

BOOKS RECEIVED

The Principles of Exercise Therapy: M. Dena Gardiner. Published by G. Bell and Sons, Ltd., London. Price $4.00, pp. 295 with index.

Psychotherapy of Chronic Schizophrenic Patients: Carl A. Whitaker. Published by Little, Brown & Co. Price $5.00, pp. 219.

The Social Desirability Variable in Personality Assessment and Research: Allen L. Edwards. Published by The Dryden Press. Pp. 108 with index.

Traquair's Clinical Perimetry:—7th Edition. G. I. Scott. Published by The C. V. Mosby Co. Price $17.00, pp. 333 with index.

Publications

Useful information for both medical educators and students is published by the Association of American Medical Colleges. These publications may be obtained from the Association headquarters office, 2530 Ridge Avenue, Evanston, Ill.

Booklets

Medical Education Today (1.50).
Admission Requirements of American Medical Colleges—1957-58 ($2.00)).
Fellowships, Funds and Prizes Available for Graduate Medical Work in the U.S. and Canada—4th edition, published 1954 ($1.50).
By-Laws of the Association of American Medical Colleges (Revised 1955).
Minutes of the Proceedings of the Annual Meetings (1947-57 Minutes now available).
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An Analytical Study of North Carolina General Practice 1953-54 ($2.00) paperbound; $3.00, clothbound.
Survey of Women Physicians graduating from Medical School 1925-40 ($1.00).
Suggestions for Supplementing the Medical Curriculum in Time of National Emergency.
Medical Education for Foreign Scholars in the Medical Sciences ($1.50).

Teaching Institute Reports ($2.00 paperbound, $3.00 clothbound).

Report of the Conference on Preventive Medicine in Medical Schools (Report of the 1952 Institute).
The Teaching of Physiology, Biochemistry and Pharmacology (Report of the 1953 Institute).
The Teaching of Pathology, Microbiology, Immunology and Genetics (Report of the 1954 Institute).
The Teaching of Anatomy and Anthropology in Medical Education (Report of the 1955 Teaching Institute).
The Appraisal of Applicants to Medical School (Report of the 1956 Institute).

Medical Audio-Visual Institute Publications

Film Catalog, Fall 1955 Supplements.
Reprints from the Audiovisual News Section of the Journal of MEDICAL EDUCATION.
Films in Psychiatry, Psychology and Mental Health (available from the Health Education Council, 92 Belmont Drive, Livingston, N.J.)
Films in the Cardiovascular Diseases (Part I available from the American Heart Assn.), 44 E. 23rd St., New York 10, N.Y. ($2.00).
Part II available from the Medical A-V Institute ($2.00).

Publications of Related Organizations

Hospitals Participating in the Matching Program 1958 (NIMP).
Results of the Matching Program 1958 (NIMP publication).
The Student and the Matching Program 1958 (NIMP publication).
Medical College Admission Test—Bulletin of Information 1957 (Educational Testing Service publication).
Psychiatry in Medical Education—1951 Conference ($1.00).
The Psychiatrist: His Teaching and Development—1952 Conference ($2.50).
(The above can be obtained from: American Psychiatric Assn., 1785 Massachusetts Avenue, NW, Washington, D.C.).

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Edited by **René J. Dubos**, Ph.D., The Rockefeller Institute for Medical Research • 3rd Edition • Publication 1958. **In Prep.**

VIRAL AND RICKETTSIAL INFECTIONS OF MAN
Edited by **Thomas M. Rivers**, M.D., and **Frank L. Horsfall, Jr.**, M.D., The Rockefeller Institute for Medical Research • 3rd Edition • Publication 1958. **In Prep.**

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By **Frances K. Oldham**, M.D., **Fremont E. Kelsey**, Ph.D., and **Eugene M. K. Gelling**, M.D., Department of Pharmacology, University of Chicago • 3rd Edition • Published 1955 • 486 Pages, Illustrated. **$6.00**

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Edited by **Cyril Mitchell MacBryde**, M.D., with a staff of 37 Collaborating Authors • 3rd Edition • Published 1957 • 933 Pages • 191 Illustrations • 50 Tables • 6 Color Plates. **$12.00**

ESSENTIALS OF DERMATOLOGY
By **Norman Tobias**, M.D., Formerly Associate Clinical Professor of Dermatology, St. Louis University • 5th Edition • Published 1956 • 651 Pages, • 211 Illustrations. **$8.00**

PEDIATRICS
Edited by **Donald Paterson**, M.D., Formerly, Clinical Professor, Department of Pediatrics and **John Ferguson McCreary**, M.D., Professor and Head, Department of Pediatrics, The University of British Columbia. With 36 Contributing Authors • 1st Edition • Published 1956 • 654 Pages • 192 Figure Numbers • 33 Tables. **$14.00**

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By **J. Garrott Allen**, **Henry N. Harkins**, **Carl A. Moyer**, and **Jonathan E. Rhoads**. With a staff of 24 Collaborating Authors • 1st Edition • Published 1957 • 1495 Pages, • 633 Figure Numbers. **$16.00**

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Items of Current Interest

AAMC Appoints Associate Director

Dr. LELAND E. POWERS will join the staff of the Association of American Medical Colleges as Associate Director on July 1. Among Dr. Power's duties in the expanding program of the AAMC will be general supervision of operational research and the teaching institutes.

Since 1954, Dr. Powers has been director of the School of Public Health and associate dean of the Faculty of Medical Sciences, American University of Beirut. He was appointed to the university in 1953 as professor and chairman of the department of public health and preventive medicine.

1958 Abel Award

The American Society for Pharmacology and Experimental Therapeutics presented the 12th annual Abel Award to Dr. Harold George Mandel, associate professor of pharmacology, George Washington University School of Medicine, Washington, D.C. The award was presented at the annual banquet of the pharmacology society, held on Wednesday evening, April 16 in Philadelphia, in conjunction with the annual meeting of the Federation of American Societies for Experimental Biology. Donated by the Eli Lilly Company and sponsored by the pharmacology society, it is named in honor of the late John Jacob Abel, famous American pharmacologist and founder of the pharmacology society.

Dr. Mandel received the award for his fundamental work in the field of drug metabolism and mechanism of drug action. His investigations have been concerned particularly with the metabolism of salicylates and related compounds, and with the mechanism of action of carcinostatic and other metabolites that involve specific biochemical pathways concerned in nucleic acid metabolism.

American Heart Association

Applications by research investigators for support of studies to be developed during the fiscal year beginning July 1, 1959 are now being accepted by the American Heart Association. The deadline for Research Fellowship applications and Established Investigatorships is September 15, 1958. Applications for Grants-in-Aid must be made by November 1, 1958.

Dr. GEORGE E. WAKERLIN has been appointed Medical Director of the American Heart Association. He was formerly professor and head of the department of physiology at the University of Illinois College of Medicine in Chicago.

In his new position Dr. Wakerlin will be responsible for planning and directing the medical and scientific programs of the American Heart Association.

Audio-Visual News

Because of a deep concern with the shortage of medical manpower in this nation, the National Broadcasting Company and the Educational Television and Radio Center at Ann Arbor, Mich., have launched a series of television programs entitled, "Decision for Research." The 13 one-half hour programs making up this series, are broadcast "live" over NBC network facilities to the 29 educational television channels throughout the country. Since kinescopes of these programs are being made, many commercial stations are showing these programs on a delayed basis. Thus,

casts, many millions of viewers are seeing this series.

Each weekly broadcast in the series has, as on-camera participants in normal laboratory atmosphere, medical and scientific specialists and student researchers. Edward Stanley, public affairs director for the National Broadcasting Company, under whose general supervision this series is being done, is fully aware of the fact that modern medical research is something in which individuals with diverse backgrounds may cooperate and assist one another in working toward a common goal. Therefore, interviews and conversations during these programs constantly stress the fact that there is room for all—for the chemist, the physician, the physicist, the biologist, the technician, the engineer, and the mathematician. The program develops this theme by showing the inter-relationships of these professions and disciplines at work.

Through a concept of educational programming such as that which embraces the "Decision for Research" series, many young people of this nation may begin to attach a new seriousness and importance to their choice of careers. When John Donne wrote that "No man is an island . . .," he might also have been speaking of today's man of medicine, who truly, must rely upon the support of so many individuals to help him in the work he does for all of us. In presenting this important fact to the young people, and in making available the kinescopes of this series to schools and universities, the National Broadcasting Company and the Educational Television and Radio Center are rendering an important public service.

Mr. Stanley and NBC are to be commended for their part in the development of this program.

Nixon to speak at Science Award luncheon

Vice President Nixon will address a luncheon meeting commemorating the 25th anniversary of the Bausch & Lomb Honorary Science Award on June 17, at the Sheraton-Carlton Hotel, Washington, D.C. More than 200 leaders in science, education, government and public affairs will attend this Silver Anniversary observance of a public service program that has encouraged the study of science in the United States.

Educational Council for Foreign Medical Graduates

According to a recent report by the Educational Council for Foreign Medical Graduates, foreign trained physicians who took the first American Medical Qualification Examination on May 25, found it difficult. Of the 298 graduates of foreign medical schools taking the examination, only 152 obtained a passing score. This, however, was the first time many of the candidates had experienced a 400-question, multiple-choice, machine-scored examination and since their reading rate in English was slow, failed to finish the examination on that account.

The A.M.Q. Examination was the first to be conducted by the newly formed ECFMG. The next examination is scheduled for September 23, 1958 and will be given in medical schools in 32 foreign countries as well as in approximately 20 U. S. medical schools. It is planned to give these examinations henceforth twice each year in centers around the world. The purpose is to enable graduates of foreign medical schools to establish their qualification to undertake higher education in medicine and assume internship or residency positions in U. S. hospitals.

MEND News

Dr. KENNETH E. PENROD, Assistant dean and professor of physiology, and Dr. WILLIAM G. ANLYAN, assistant professor of surgery, have been named as MEND coordinators at Duke University School of Medicine, replacing Dr. Joseph K. Isley.

Dr. James R. Schofield, MEND National Coordinator, spoke before the

Individual Membership

in the

Association of American Medical Colleges

Medical college teachers and administrators, and other persons interested in medical education now have the opportunity to become Individual Members of the Association of American Medical Colleges.

Individual Membership means receiving the Journal of Medical Education each month. It means participating in the discussions of the Annual Meeting and receiving the reports of the Teaching Institutes. It means receiving copies of the yearly *Directory*, the *Proceedings* of the Annual Meeting, and other Association publications. And it makes available a valuable, though limited, information service and a personnel exchange service.

Individual Membership, at only $10 a year, is open to any person who has demonstrated a serious interest in medical education over a period of years. All the privileges of membership and a provisional membership card are granted immediately after payment of the $10 fee, although confirmation must await official action at the next Annual Meeting.

To obtain membership, fill out the application form below, append check for $10, and return to the Association's central office at 2530 Ridge Ave., Evanston, Ill.

INDIVIDUAL MEMBERSHIP APPLICATION

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

2530 Ridge Ave., Evanston, Ill.

Name:_____

Mailing Address:_____

_____

(City) (Zone) (State)

Field of medical education in which chief interest lies:_____

_____

College or other connection:_____

_____

Oklahoma County Medical Society in Oklahoma City on April 22. The title of his talk was *MEND: A New Phase of Medical Education.*

A second addendum listing to the original *MEND Reference List* was completed and distributed in April. This includes an additional 93 items on military and disaster medicine.

Passano Foundation Award

Dr. GEORGE W. CORNER of the Rockefeller Institute for Medical Research has been selected as the recipient of the $5,000 Passano Foundation Award for 1958. During the convention of the AMA in San Francisco in June, a reception and dinner will be held in his honor. Dr. Corner was a recent contributor to the Journal with his article, "The Role of Anatomy in Medical Education."

World Medical Association

The Secretary General of The World Medical Association announced that on July 1, 1958, the services of a Central Repository for Medical Credentials will become available to the doctors of the world. All judicious precautions will be exercised to protect the records of depositors. Today, many doctors are working as laborers or research assistants as a result of the loss or destruction of their original credentials and the lack of a protective service in which authenticated copies could be deposited.

Wyeth Grants

Medical schools throughout the nation are recipients of unrestricted grants totaling $90,000 awarded by Wyeth Laboratories.

U. S. Air Force

The Air Force School of Aviation Medicine is sponsoring a space symposium at Randolph Air Force Base, Texas in November. The program is expected to bring together specialists in every aspect of space exploration, with emphasis on man's imminent venture beyond the Earth's protective atmosphere, and the necessary conditions for his survival.

Academic rank as the world's first professor of space medicine has been awarded to Dr. Hubertus Strughold at the Air Force School of Aviation Medicine. Dr. Strughold, who founded the school's department of space medicine ten years ago this spring, has been known until now as professor of aviation medicine.

Brigadier General M. S. White, USAF (MC) became President of the Aero Medical Association at their 29th annual meeting in Washington, D.C.

Atomic Energy Commission

Dr. JOHN HARRY WILLIAMS, University of Minnesota physicist, has been named Director of the Research Division of the Atomic Energy Commission. Dr. Williams was granted a leave of absence by the university to accept the appointment.

Department of Health, Education, and Welfare

Laboratory Refresher Training Courses are offered by the Laboratory Branch of the Communicable Disease Center during the period of September 15, 1958 to April 10, 1959. Information and application blanks may be obtained from the Laboratory Branch, Communicable Disease Center, U. S. Public Health Service, P.O. Box 185, Chamblee, Ga.

The Public Health Service has made a grant of $417,939 to the Albert Einstein College of Medicine for research on the medical and biological aspects of aging. Though the College now has a research program on aging, the grant will establish a distinctly new program.

Thirteen European scientists are the recipients of postdoctoral medical and biological research fellowships awarded by the Public Health Service. In announcing the awards, Surgeon General Leroy E. Burney stated that "the exchange of ideas and knowledge between these scientists

and scientists in the United States should eventually lead to real health benefits for people of all nations."

World Health Assembly

The World Health Organization, largest of the several specialized agencies of the United Nations, is holding its eleventh annual Assembly in Minneapolis May 26-June 14, 1958. This World Health Assembly, the annual policy and program meeting of 88 member nations, marks the first time the World Health Organization has met in the United States and will also commemorate a decennial of worldwide health progress.

Although readers of the Journal may be especially interested in progress in medical education and training, they should also know that the World Health Organization has been active and effective in:

1. Technical assistance in the control of such communicable diseases as malaria, tuberculosis, and yaws, among others.

2. Control of epidemics through a worldwide reporting and intelligence network and through improved international sanitary regulations.

3. Establishment of worldwide standards for biologics standardization and an international pharmacopeia, as well as specialized reference centers for blood groups, salmonella and shigella, and poliomyelitis and influenza viruses.

4. Establishment of internationally accepted nomenclature, as in generic names for pharmaceuticals and classification of diseases, and special study groups to propose standards of definition for cancer types and arteriosclerosis.

5. Wide range of reports and publications, as represented by the *Bulletin*, a technical report series and several monographs.

Through assistance to medical education and training the World Health Organization has had a profound influence on health and medical progress. Over 6,000 fellowships have been awarded—nearly two-thirds to physicians—for the improvement of health and medical knowledge. Visiting professors in increasing numbers and terms of service have been sent out to conduct surveys and lay out long-term development programs, to assist in curriculum improvement and in presentation of technical materials, and in training replacement understudies. The volume of these services now averages about 25 man-years annually.

Moreover, the World Health Organization has made an inventory of medical schools in 83 countries and the revised World Directory of Medical Schools (1958) provides data for the first time on each school in each country, on the medical curriculum, the number of students admitted to medical schools, the number studying and graduated each year as well as the number of teachers. A comparable directory of dental schools is in preparation.

Together with the World Medical Association, the Council of International Organizations of Medical Sciences and the International Association of Universities, the World Health Organization co-sponsored the First World Conference on Medical Education in 1952 in London. The Second World Conference is now being planned for Chicago in the Fall of 1959.

Through these multiple programs, including especially projects in medical education and training, the World Health Organization has—and still is—exercising a profound influence on the improvement of health and medical services in member countries. United States medical education may expect to feel the effects of this concerted effort through the loan of staff members and receiving of World Health Organization-sponsored students for further training.

News from the Medical Schools

Albany

The International College of Surgeons has named Dr. ARTHUR J. WALLINGFORD, professor of obstetrics and gynecology and chairman of the department, to a two-year term on its international board of governors. The International College of Surgeons meets annually to discuss new concepts in surgery and its monthly journal serves to acquaint the world's surgeons with reports of research, clinical observations and experimental work in surgery.

Baylor

Dr. STANLEY W. OLSON, dean, has been selected as one of four physicians to make a survey of major medical missions in southern Asia and in Africa this summer. Sponsored by the Baptist World Alliance, the purposes of the tour will be to survey existing medical mission facilities of several denominations; to lend personal Christian medical service through treatment of patients in special clinics and teaching sessions; and to begin plans for maintaining a permanent revolving pool of physicians who will volunteer their services to undermanned medical missions for three-month periods.

Boston

Cancer research facilities will be provided by a grant of $50,000 from the legacy fund of the American Cancer Society. This amount will be added to the funds now being raised for the construction of a $3 million medical research building at the present site of the medical school in Boston's South End. The university has already received $900,000 in a $1.5 million drive to match a federal grant of a similar amount for this project.

Chicago Medical

Dr. JACK A. WEISS, associate professor of otolaryngology, has been appointed professor and chairman of the department of otolaryngology. Dr. Weiss succeeds Dr. MAURICE COTTLE, who will remain with the school as professor of otolaryngology. Dr. Cottle resigned the department chairmanship in order to devote more time to research.

University of Chicago

Dr. LOWELL T. COGGESHALL, dean of the division of biological sciences, presented the Howard Taylor Ricketts Award for 1958 to Dr. RENE JULES DUBOS, bacteriologist of the Rockefeller Institute for Medical Research. The presentation was made at a banquet held May 12.

Dartmouth

The medical school has added three new members to its faculty. Dr. FAIRFIELD GOODALE, Jr. has been appointed assistant professor of pathology. Dr. Goodale is currently associated with the department of pathology at Harvard Medical School and at the Massachusetts General Hospital; Dr. EARL E. JACOBS has been appointed associate professor of biochemistry. Dr. Jacobs wil come to Dartmouth from the University of California School of Medicine where he has held an appointment as research biochemist; Dr. ARTHUR NAITOVE, presently acting assistant chief of the surgical service at the White River Junction, Vermont, Veterans Administration Hospital, has been appointed instructor in physiology. Also joining the department of physiology as instructor is Dr. BERNARD F. SCHREINER, Jr., who is currently on the faculty of the University of Rochester School of Medicine and Dentistry.

Albert Einstein

The Public Health Service has granted the requested $270,363 for construction of the projected Hyman Korman Research Building on the grounds of the Northern Division. The required additional $27,000 for equipping this new research structure is expected to be granted by the Public Health Service out of its next fiscal year's appropriation.

Emory

Dr. ELBERT P. TUTTLE, Jr., has been named to the Chair of Cardiovascular Research. Dr. Tuttle has been an assistant professor of medicine at Emory since July 1957, when he was appointed head of the section of renal diseases and electrolytes. The Georgia Heart Association provides partial support for the position in cardiovascular research.

Hahnemann

A major research laboratory promising new insights into the study of cancer was formally dedicated recently before an audience of scientists from research institutions throughout the nation. The newly opened institute for biochemical studies in cancer was dedicated by Dr. VAN RENSSELAER POTTER, professor of oncology at the University of Wisconsin School of Medicine. The Institute will be under the direction of Dr. JULIUS SCHULTZ, associate professor of biochemistry.

Harvard

A grant of $400,000 to the Harvard Medical School and the Boston Lying-In Hospital for basic studies in problems surrounding the origin of life and the birth process has been made by the Association for the Aid of Crippled Children. The grant is in addition to $371,000 previously voted by the Association to support work in the same general area at Harvard. Dr. DUNCAN E. REID, professor of obstetrics, Dr. CLEMENT A. SMITH, associate professor of pediatrics, and Dr. CLAUDE A. VILLEE, associate professor of biological chemistry, will be responsible for the conduct of the program.

Jefferson

Dr. WILLIAM A. SODEMAN has been named dean of the college, to succeed Dr. George A. Bennett, whose unexpected death in February of this year, left this post unfilled. Dr. Sodeman is the Magee Professor of Medicine and head of the department of medicine.

William A. Sodeman, M.D.

Following his graduation from the University of Michigan, Dr. Sodeman made cardiology his special study, and is certified by the Board of Cardiovascular Disease as well as by the American Boards of Internal Medicine and Preventive Medicine.

Dr. Sodeman was a member of the Executive Faculty of the Tulane University Medical College and in 1953 he left Tulane to accept the professorship of medicine at the University of Missouri Medical School. He resigned this latter position to accept the post of head of the department of medicine at Jefferson.

Miami

Construction of the medical research unit of the University of Miami School of Medicine started in May. The building will house laboratories for all phases of medical research and the first unit of the permanent medical library.

Minnesota

Admissions to the University of Minnesota Medical School will be increased from 125 to 140 students for the next school year, and to 150 in 1959. It is estimated that by 1962,

the four medical school classes will have a combined total enrollment of approximately 600 as compared with under 500 at present. Enlarged and improved laboratory facilities and strengthening of the staffs of the university's basic medical science department are the principal factors which permit the step-up in enrollment.

North Dakota

Bids have been let and approved by the State Board of Higher Education for the construction of a $200,000 biochemical laboratory. The new laboratory was made possible by a $75,000 grant to Dr. W. E. CORNATZER, professor and head of the department of biochemistry from Mrs. Bertha Ireland of Grand Forks, after whom the laboratory will be named. The National Institutes of Health and the State Medical Center have made up the remainder of the funds.

Pittsburgh

Dr. FRANCIS S. CHEEVER has been appointed dean of the medical school, effective July 1. Dr. Cheever succeeds Dr. WILLIAM S. MCELLROY, who is retiring after 19 years as dean of the medical school. Dr. McEllroy will continue as a special adviser to the Chancellor on medical affairs. Dr. Cheever has been professor of microbiology in the Pitt Graduate School of Public Health. Before joining the Pitt faculty, Dr. Cheever served as assistant professor in the Harvard Medical School from 1946 to 1950 and as instructor from 1938 until he entered military service in 1941. Since 1951, Dr. Cheever has served as special consultant to the Communicable Disease Center of the Public Health Service and is also a consultant to the ICA, the Armed Forces Epidemiological Board, and the Allergy and Immunology Study Section of the Public Health Service.

Francis S. Cheever, M.D.

Dr. EDMUND R. MCCLUSKEY, professor and head of the department of pediatrics, has been named vice chancellor of the schools of the health professions at the university. The appointment, effective July 1, will fill the vacancy created by the resignation of Dr. Robert A. Moore, who became president of the Downstate Medical Center of the State University of New York.

E. R. McCluskey, M.D.

Dr. McCluskey, a graduate of the University of Toronto, joined the faculty as instructor in pediatrics in 1929 and was promoted through assistant professor and associate professor until he reached full professorial rank and became head of his department in 1948.

Chancellor Edward H. Litchfield appointed Dr. JAMES A. CRABTREE as dean of the Graduate School of Public Health. He succeeds Dr. THOMAS PARRAN, who came to Pitt in 1948 to organize the school and who has now become director of the Avalon Foundation in New York.

Dr. Crabtree came to the university in 1949 from the Public Health Service, and is presently head of the department of public health practice.

Pennsylvania

Dr. CARL F. SCHMIDT, professor and chairman of the department of pharmacology, is one of a group of three medical scientists appointed by the International Union of Physiological Sciences to visit South America to discuss problems of medical education and research. Dr. Schmidt left May 14 to join Dr. C. Heymans, pro-

'Thorazine' is extremely useful in a wide variety of indications in nearly all fields of medicine. It is extremely effective in conditions where mental and emotional disturbances or nausea and vomiting are present, and where the relief of pain through potentiation of sedatives, narçotics and anesthetics is desired.

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fessor of pharmacology at the University of Ghent, Belgium, and Dr. R. Granit, professor of physiology at the Karolinska Institute, Stockholm, Sweden for a six-week tour of South American medical education and research facilities.

Rochester

Dr. JOHN H. VAUGHAN, now on the faculty of the Medical College of Virginia, will join the University of Rochester School of Medicine and Dentistry faculty on July 1 to head a new training and research program in clinical immunology. Dr. Vaughan has been appointed associate professor of medicine and assistant professor of bacteriology and immunology, and senior associate physician in Strong Memorial Hospital.

Three members of the faculty have been promoted to full professors. They are: Dr. Lawrence A. Kohn, who has been named clinical professor of medicine; Dr. E. Henry Keutmann, professor of medicine and pharmacology; and Dr. Paul H. Garvey, professor of neurology.

Stanford

Dr. E. DWIGHT BARNETT has joined the faculty as professor of hospital administration and has also been named director of the Palo Alto-Stanford Hospital Center. The Hospital Center will be part of the now-building Stanford Medical Center on the campus. Dr. Barnett's faculty appointment makes him a member of the department of medicine.

S.U.N.Y. Syracuse

Dr. JOHN H. MABRY, assistant professor of preventive medicine, has been awarded a World Health Organization traveling fellowship for research in mental health in England this summer. Dr. Mabry, a sociologist, will spend two months at Mapperley Hospital for mental patients at Nottingham, England and the remainder of his three-month stay visiting six other mental hospitals in England and Scotland.

Temple

Announcement has been made of the appointment of Dr. CARROLL F. BURGOON as Medical Director of the Skin and Cancer Hospital which is affiliated with the Temple University Medical Center. Dr. Burgoon, currently professor and chairman of the department of dermatology and syphilology at Hahnemann Medical College, is also chief of the service at Philadelphia General Hospital, and is a member of the staff of the Montgomery Hospital in Norristown, Pa.

Dr. FREDERICK URBACH has been made assistant medical director of the specialty hospital and will also serve as associate professor of dermatology at the medical school.

U. of Virginia

Dr. THOMAS H. HUNTER, dean of the medical school, has announced a campaign to establish an endowed professorship in internal medicine, with Dr. HENRY B. MULLHOLLAND as the first incumbent. The endowed professorship, according to Dr. Hunter, "will go far toward strengthening the research and teaching in years to come in the area to which Dr. Mulholland has devoted such a large part of his life."

Wayne State

The university's Board of Governors has voted to increase the college of medicine enrollment from 75 to 125 freshmen students, beginning in September, 1958. Funds to cover expansion will come from the State's general appropriation to the university of $9,718,900. The university's action climaxed a concerted two-year effort by a group of lawmakers and health officials to head off a growing shortage of doctors in Michigan.

An annual lectureship to perpetuate the name of Dr. GEORGE KAMPERMAN, has been established by the department of obstetrics and gynecology. Dr. Kamperman has practiced obstetrics and gynecology in Detroit for 46 years and retired from prac-

tice recently. The first George Kamperman lecturer will be Dr. CURTIS J. LUND, professor and chairman of the department of obstetrics and gynecology, University of Rochester School of Medicine.

A new department of physical medicine has been created at the college of medicine and Dr. JOSEPH N. SCHAEFFER has been appointed special professor of physical medicine.

Plans are underway to begin construction of a $1.5 million Life Sciences Research Building this summer. Construction is expected to start in August. The building was made possible by a $500,000 grant given to the university on a matching basis by the Division of Research Grants of the National Institutes of Health. The building is planned as an addition to the university's Science Hall and will house research laboratories of the chemistry and biology departments.

Yale

Dr. MILTON J. E. SENN, director of the Child Study Center and chairman of the department of pediatrics, departed for Soviet Russia in May to study child care and rearing practices in that country. In return, a Russian doctor, as yet unknown, will come to the Yale School of Medicine late this year as a guest of the Child Study Center. Dr. Senn holds the rank of Sterling Professor of Pediatrics and Psychiatry.

The Personnel Exchange

Faculty Vacancies

• ANATOMIST: Assistant professor or instructor for medical and dental school teaching, prefer experience in teaching gross anatomy. Address: V-66.

• CARDIOVASCULAR PHYSIOLOGIST: A new faculty position in physiology has been created at the University of South Dakota by a long-term grant from the South Dakota Heart Association. The holder is to devote at least ⅔ time to basic research in the general area of cardiovascular physiology with less than ⅓ time for teaching and other duties. Faculty rank is to be commensurate with training and experience. The salary range is from $8,000 to $10,000 annually. Direct inquiries to Medical Advisory Committee, Heart Association c/o Office of the Dean, University of South Dakota, School of Medicine, Vermillion, South Dakota.

• PHYSIOLOGIST, PHARMACOLOGIST or BIOCHEMIST: (Ph.D. or M.D.) required to direct newly established Anaesthesia Research Laboratory. Some teaching assignments to undergraduate and post-graduate students. Salary depending upon experience. For full particulars write Gordon M. Wyant, F.F.A.R.C.S., Professor of Anaesthesia, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

• VIRUS RESEARCH: M.D., or Ph.D. interested in infectious diseases, basic studies on mechanisms of infection and on etiology, pathogenesis and epidemiology of virus diseases of infancy and childhood. Excellent facilities. Salary and rank open on basis of candidate's qualifications. Starts July 1, 1958. Address: V-67.

• BACTERIOLOGY: Associate Professor and Senior Assistant Bacteriologist, Provincial Laboratory and University Hospital (combined appointment). M.D. with experience of teaching and of medical diagnostic bacteriology. Initial salary $10,000. Apply to the Dean, Faculty of Medicine, the University, Edmonton, Alberta, Canada.

• MEDICAL BACTERIOLOGIST: The University of Ottawa requires an Assistant—Professor of Bacteriology in the Faculty of Medicine. Applicant should be a graduate in medicine with postgraduate experience in bacteriology preferably in teaching or laboratory instruction. Salary open. Please state salary expected. Address inquiries to Dr. R. J. Gibbons, Professor of Bacteriology, Faculty of Medicine, University of Ottawa, Ottawa, Canada.

• PHYSICIANS (2): The Survey of General Practice in Canada requires two physicians as full-time assistants, one in Nova Scotia, the other in western Canada. Duties commence summer or autumn of 1958 and run 12 to 18 months (details to be arranged). Salary $8,000-$10,000 per annum, depending on experience, plus travel expenses. These positions involve considerable responsibility and should appeal to physicians who have a broad interest in the problems of general practice, including the educational problems. Applicants should have had two years' postgraduate training. Training in internal medicine is a desirable background. Send application, with details of experience and names of two references on medical faculties to Director, Survey of General Practice, School of Hygiene, University of Toronto, Toronto 5, Ontario.

• BIOCHEMIST: Applications are invited for the Chair of Biochemistry in the Faculty of Medicine. Minimum qualifications: M.D. with special training in Biochemistry, or Ph.D. in Biochemistry. Teaching and research experience essential. Salary in the range of $10,000, depending on qualifications and experience. Address applications or enquiries to L. G. Bell, M.D., Dean, Faculty of Medicine, The University of Manitoba, Emily & Bannatyne, Winnipeg 3, Man., Canada.

• BIOCHEMIST: Teaching and research, department of biochemistry, University of Alabama. Salary and rank depend upon educational background, teaching and research activities. Reply should include personal history, complete bibliography and photo. Address: Emmett B. Carmichael, Department of Biochemistry, Alabama Medical Center, Birmingham 3, Ala.

• OBSTETRICS and GYNECOLOGY: Full-time Board eligible instructor for expanding Department Obstetrics and Gynecology in large midwestern university. Ample opportunity for research, teaching and clinical experience. Address: V-68.

• FELLOWSHIP in CARDIOVASCULAR DISEASE: Active participation in cardiac catheterization, cine-angiocardiography, phonocardiography and experimental surgical laboratories. Should have completed internship. Possible later incorporation into surgical or medical residency. Apply to J. G. Mudd, M.D., St. Louis University Hospitals, 1325 S. Grand Blvd., St. Louis 4, Mo.

To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 2530 Ridge Avenue, Evanston, Illinois, not later than the 10th of the month which precedes the month in which the listings will appear.

Personnel Available

• GASTROENTEROLOGIST: Age 33. Board certified, with four years full-time experience in gastroenterology, primarily in university hospital. Research experience and publications; membership in Am. Fed. Clin. Research, Am. Gastroscopic Society. At present assistant professor; seeking better opportunity for research and teaching, will consider geographical full-time, preferably Northeast or South. Address: A-344.

• INTERNIST: (Also two years of Psychiatry) Age 46, with experience in teaching and research (clinical investigation, normal and pathological physiology, experimental pharmacology and preventive medicine). Many publications, at present in group practice in Canada. Desires to return to academic position in research field. Address: A-345.

• PHARMACOLOGIST: Ph.D., age 33. Six years industrial research and 2 years teaching experience. Background of research in endocrinology and drugs effecting the hematopoietic system. Prefers teaching position in a medical institution allowing adequate time for research. Available June 15, 1956. Address: A-346.

• PATHOLOGIST: Foreign trained. U. S. citizen. After working in a general hospital for 7 years, desires research position. Particularly interested in pathology of chronic infectious disease. Publications, including an extensive investigation of influence of tobacco smoke on cardio-vascular system. Teaching experience but prefers a full-time research position. Address: A-347.

• PEDIATRIC ALLERGIST: Age 36, Dipl. Amer. Board of Pediatrics. Currently fellow in pediatric allergy, seeking full or part-time teaching position in either Illinois or New York, as of July, 1956. Address: A-348.

• MEDICAL BACTERIOLOGIST: Ph.D. Excellent background in clinical bacteriology, mycology, and public health bacteriology. Good background in parasitology and virology. Ten years teaching experience. Research published and in progress. Admin. experience in hospitals. Desires position in teaching and/or research and/or clinical microbiology. Address: A-349.

• PATHOLOGIST: Age 32, board certified PA, traditionally trained and of semi-academic background, seeks full-time academic position with opportunity for combined teaching, service-type practice in university hospital. Especial interests in medical and pediatric pathology. South or southwest preferred. Address: A-350.

• INTERNIST: Physician from Colombia, S.A. Professor of Internal Medicine of the Faculty of Bogota in 1953, assistant professor since 1936. Member of Academy of Medicine of Bogota. Publications: 3 books and many articles in Spanish. Fluent in English. Last five years Cultural Counselor of the Embassy of Colombia in Washington, D.C. Recent courses in Cardiology and radioisotopes at Georgetown Univ. Interested in teaching in American university. Address: A-351.

• PHARMACOLOGIST-TOXICOLOGIST: Ph.D., age 35. Married, 2 children. Assistant Professor of Pharmacology and Toxicology with approximately 10 years pre-clinical teaching experience in medical school and with position of Scientist in associated medical research facility. Present research in field of inhalation materials and involves radioisotopic and telmetering technics. Desires position in non-industrial institution where fundamental research is emphasized and teaching opportunities exist. Particularly interested in autonomic physiology-pharmacology of the respiratory tract. Address: A-352.

• PREVENTIVE MEDICINE: British, married with one child. Medical graduate of Edinburgh University, 1952. Served two years National Service as Captain in Royal Army Medical Corps—M.O. in charge Chest Investigation Unit at Army Hospital. Several internships in medicine, surgery and experience in general practice. Post-graduate year, for D.P.H. in Edinburgh University. Presently on staff of Usher Institute of Public Health and Social Medicine, Univ. of Edinburgh with teaching and research duties. Author and co-author of articles in medical journals. Desires appointment in American university in Public Health (Preventive Medicine). Address: A-353.

• PHYSIOLOGIST: Ph.D., 1954. Male, 39, married. Teaching and research experiences. Presently assistant professor in dental school. Desires teaching position with research opportunities in medical or dental school. Address: A-354.

• PSYCHIATRIST: Age 37, certified, F.A.P.A., at present associate professor in medical school, 9 years experience in teaching and private practice, numerous consulting appointments, desires relocation. Address: A-355.

• MICROBIOLOGIST: Ph.D., 32, married male, six years research and three years teaching experience. Research interest in microbial pathogenicity, enterocci and immunology. Desires teaching position allowing time for research. Address: A-356.

• BIOSTATISTICIAN: From basic medical sciences department and currently on overseas lectureship award on the application of statistical methods to biological research data, seeks academic post combining teaching and research. Address: A-357.

• SURGEON: Certified general, thoracic. Age 37, 12 years training teaching hospitals. Publications; interested research, teaching. Desires academic position. Address: A-358.

• PHYSIOLOGIST: Ph.D., M.D., 38, presently professor of physiology in prominent Midwestern medical school. Eleven years experience in teaching medical physiology. Over 50 publications in cardiovascular physiology. Investigative interests: experimental hypertension, cardiac output, regional blood flow, transcapillary transfer rates. Experienced radioisotopes. Desires position Middle Atlantic area or Pacific Coast. Teaching position preferred; research position acceptable. Address: A-359.

• BIOCHEMIST: Ph.D. 1951. Diversified research experience: physiochemistry and structure studies of proteins, kinetics and thermodynamics of enzymatic reactions, steroid and antibiotic isolation. Chromatography physical techniques and electronics. Publications. Desires career position in either academic or research institute. Address: A-360.

• EPIDEMIOLOGIST: Age 31. M.D., Washington Univ., 1951. M.P.H. Yale 1957, (Dr. P.H. Yale 1959). Desires affiliation with department of preventive medicine and responsibilities for cardio-vascular disease, epidemiological research. Available September 1958. Address: A-361.

• INTERNIST-PSYCHIATRIC ORIENTATION: Certified, 36, desires to participate in practice of comprehensive medicine. Southwest location. Address: A-362.

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